LAUREA
UNIVERSITY OF APPLIED SCIENCES
Together we are stronger

Designing a Digital Wellbeing Service Concept for Families with Children

Turunen, Susanna

2016 Laurea

Laurea University of Applied Sciences

Designing a Digital Wellbeing Service Concept for Families with Children

Susanna Turunen
Degree Programme in Service Innovation and Design
Master's Thesis
November, 2016

Laurea University of Applied Sciences **Abstract**
Degree Programme in Service Innovation and Design
Master's Thesis

Turunen, Susanna

Designing a Digital Wellbeing Service Concept for Families with Children

Year 2016 Pages 129

The purpose of this thesis was to design a digital wellbeing service concept for families with children. The Perheentuki service offered by the City of Helsinki was used as a case example. The thesis aimed at developing ways for improving the customer experience of the Perheentuki customers through deep understanding of the families' needs, goals, motivations and behaviour from a holistic wellbeing perspective, taking the driving forces of the social and technological trends into consideration as well as the opportunities provided by weak authentication methods in enabling more personalized customer experience.

The theoretical foundation for this thesis was based on service marketing and management, applying human-centred design approaches, i.e. service design, design thinking, goal-directed design and futures thinking in the concept development. The design process used in this thesis was a combination of the Double Diamond and goal-directed design processes, including the stages of discover, define, and develop.

In the discover stage, methods such as expert interviews, online survey, design probes and contextual customer interviews were used. Analysing and modelling the data in the define stage was carried out through open and selective coding and affinity mapping. The key customer insights combined with the definition of a stakeholder map, trend analysis, and the idea generation supported and contributed to the development and definition of the two personas and the design drivers through an iterative process. The designed concept, the Family Wellbeing Service, was presented in the develop stage through context scenarios and storyboards. The concept overview with key features and benefits for different stakeholders were also presented along with the preliminary business model using the service-logic business model canvas.

This thesis provides both scientific and practical value for cities, private sector organizations, developers, research institutions as well as citizens. The scientific value relates to examining the service-dominant logic in the public sector and extending the knowledge of service innovation and citizen participation in the public sector, as well as addressing the opportunities for the cities in driving and facilitating innovation collaboration between different stakeholders by building service platforms enabling the development of personalized and context-related wellbeing services for the citizens. Furthermore, the study contributes to the service design approach, processes and methods in developing public healthcare and wellbeing services, and provides practical value through the identification of deep customer insights as well as concrete service ideas for improving the customer experience in the future wellbeing services. Finally, this thesis contributes to the EU H2020 funded WeLive research project, in which Laurea University of Applied Sciences is a consortium member.

Keywords: service-dominant logic, service design, futures thinking, public service innovation, wellbeing service platform

Laurea-ammattikorkeakoulu **Tiivistelmä**
Degree Programme in Service Innovation and Design
Tradenomi (YAMK)

Turunen, Susanna

Lapsiperheille suunnatun digitaalisen hyvinvointipalvelun muotoilu

Vuosi 2016 Sivumäärä 129

Opinnäytetyön tavoitteena oli kehittää lapsiperheille suunnattu, digitaalinen hyvinvointipalvelu. Helsingin kaupungin tarjoamaa Perheentuki-palvelua käytettiin suunnittelun lähtökohtana. Opinnäytetyön kautta pyrittiin saavuttamaan syvällinen ymmärrys perheiden kokonaisvaltaiseen hyvinvointiin liittyvistä tarpeista, tavoitteista, motiiveista ja käyttäytymismalleista sekä tunnistamaan keinoja asiakaskokemuksen kehittämiseksi huomioiden sosiaalisten ja teknologisten trendien sekä kevyen tunnistusmenetelmien tarjoamat mahdollisuudet.

Tutkimuksen teoreettinen lähtökohta perustui palvelumarkkinointiin ja -johtamiseen, soveltaen ihmiskeskeisen suunnittelun menetelmiä, kuten palvelumuotoilua, muotoiluajattelua, tavoitekeskeistä suunnittelua ja tulevaisuuden ennakointia konseptin kehittämisessä. Opinnäytetyössä käytettiin palvelumuotoiluprosessia, jossa yhdistettiin Double Diamond ja tavoitekeskeisen suunnittelun prosessit. Prosessiin sisältyi kolme vaihetta: tutkimus, määrittely ja kehitys.

Tutkimusvaiheessa hyödynnettiin mm. asiantuntijahaastatteluja, verkkokyselyä, muotoiluluotainmenetelmää sekä asiakkaiden kontekstihaastatteluja. Tiedon analysointi ja mallintaminen toteutettiin määrittelyvaiheessa avoimen ja valikoivan koodauksen sekä affiniteettikaavioiden avulla. Opinnäytetyössä määriteltiin iteratiivisen prosessin kautta kaksi persoonaa sekä konseptin muotoiluvaatimukset yhdistämällä keskeiset asiakastarpeisiin liittyvät löydökset sidosryhmäkartan määrittelyyn, trendianalyysiin sekä ideoinnin tuloksiin. Suunniteltu konsepti, Perheen Hyvinvointipalvelu, esitettiin kontekstiskenaarioiden sekä kuvallisen kerronnan avulla muotoiluprosessin kolmannessa vaiheessa. Kehitysvaiheessa esiteltiin lisäksi konseptin yhteenveto, keskeiset ominaisuudet ja hyödyt eri osapuolille sekä alustava liiketoimintamalli käyttäen service-logic business model canvas työkalua.

Tämä opinnäytetyö tarjoaa sekä tieteellistä että käytännöllistä arvoa kaupungeille, yksityisen sektorin organisaatioille, kehittäjäyrityksille, tutkimuslaitoksille sekä kaupunkilaisille. Tieteellinen arvo muodostuu palvelukeskeisen liiketoimintalogiikan tarkastelusta julkisella sektorilla, sekä tietämyksen laajentamisesta liittyen palveluinnovaatioihin ja kaupunkilaisten osallistamiseen julkisella sektorilla. Opinnäytetyössä käsiteltiin myös kaupunkien mahdollisuuksia edistää innovaatioyhteistyötä eri sidosryhmien välillä rakentamalla palvelualustoja, jotka mahdollistavat yksilöllisten ja kontekstipohjaisten hyvinvointipalvelujen kehittämisen kaupunkilaisille. Opinnäytetyö tuottaa lisäarvoa myös palvelumuotoilun, prosessien ja menetelmien hyödyntämisestä julkisen terveydenhuollon ja hyvinvoinnin palvelujen kehityksessä, sekä tuo käytännöllistä hyötyä syvällisten asiakastarpeiden sekä konkreettisten palveluideoiden tunnistamisen kautta asiakaskokemuksen kehittämiseksi. Tämä työ täydentää myös laajempaa, EU:n H2020-ohjelman rahoittamaa WeLive-tutkimusprojektia, jonka jäsen Laurea-ammattikorkeakoulu on.

Avainsanat: palvelukeskeinen liiketoimintalogiikka, palvelumuotoilu, tulevaisuuden ennakointi, julkisten palvelujen innovointi, hyvinvointipalvelualusta

Table of Contents

1 Introduction

The purpose of this thesis is to design a digital wellbeing service concept for families with children using Perheentuki -service as a case example. The focus is on gaining an in-depth understanding of the families' needs, goals and mental models related to holistic wellbeing through human-centred design and defining the drivers for developing the concept. Furthermore, the aim is to identify concrete service ideas for improving the welfare of families as well as to determine the opportunities and benefits of weak authentication methods (e.g. Facebook, Twitter or Google) in enabling personalized customer experience.

This chapter provides an introduction to the phenomena related to the increasing dominance of services both in the private and the public sector, opportunities enabled by open and citizen-driven service innovation as well as new technologies. In addition, the key projects affecting the national and the Helsinki Metropolitan level healthcare and social services are presented. Next, the background of the thesis is discussed followed by the objectives and delimitations of the thesis. Finally, the structure of the report, the theoretical approach, and the key concepts are explained.

1.1 Proliferation of Services and New Technologies Transforming the Healthcare Industry

The economies and the economic growth of the advanced countries is increasingly dominated by the service sector, as since the mid-1980s it has represented more than 70 % of the western nations' gross domestic product (GDP) and more than 80 % of the employment e.g. in the US (Bitner et al. 2008, 66; Polaine et al. 2013, 28; Zeithaml et al. 2013, 5; Lüftenegger 2014, 1; Edwards et al. 2015, 76; Randhawa & Scerri 2015, 28). Edwards et al. (2015, 76) argue that in addition to the service driven markets, there will be an increasing complexity of the competitive environment, which combined will provide context for open service innovation incorporating a wider range of different stakeholders within service design. The service innovation will inherently be combined with complex social issues and the service-dominant logic, in which the service experienced by the customer forms the fundamental basis of the new business logic. Benefits arise from incorporating different stakeholders, including the customer, into the open innovation processes by utilizing methods and mindset inspired by design thinking (Edwards et al. 2015, 76; Ojasalo et al. 2015, 196).

The proliferation and steady integration of new technologies (e.g. cloud computing, social media, mobile technologies) into the everyday lives of businesses, governments and citizens are giving rise to new forms of public engagement and relationships that overlap across public, private, and social industries in a new digital governance environment. The shift from a

citizen-centric to a citizen-driven model of digital government is also enabling the governments to transform their management model from networked, i.e. internal coordination and collaboration, to collaborative and participatory governance with more open forms of engaging institutional and non-institutional stakeholders in the public value creation. (Organization for Economic Cooperation and Development 2013.)

According to Jäppinen (2015, 709), the concept of citizen-driven innovation was introduced in the international and the Finnish innovation policy during the first decade of the twenty-first century. Jäppinen (2015) states that the Finnish government programs in the early 2000s and the national innovation strategy from 2008 have aimed at ensuring the possibilities for citizens to participate in the service development. In the meantime, new innovative user-driven and human-centred methods, such as service design, have become available also for citizen participation. Service design combines management, marketing, research, and design as well as provides an interface for connecting organizations, customers, and other stakeholders in a new way (Moritz 2005, 5; Jäppinen 2015, 709). Jäppinen (2015) also states that many Finnish cities, e.g. Helsinki, Espoo, and Tampere, have integrated human-centred and user-driven orientations into their strategies. However, it is not yet a common practice of local authorities to design and develop services in cooperation with citizens according to international and Finnish studies (Jäppinen 2015).

Even though the healthcare industry is the largest service sector in many countries worldwide, it is lagging behind the other areas in utilizing innovative and efficient approaches from both the customer and the service organization perspective (Jung & Padman 2015, 297-303). Jung & Padman (2015, 297-303) argue that the disruptive models of healthcare delivery leveraging the latest technology, the information and communication platforms in novel ways have the potential to transform the healthcare industry entirely. The utilization of digital service channels for informing, engaging and empowering the customer in shared decision making will enable more personalized services and increased customer experience through higher availability and more efficient allocation or resources.

In Finland, Wellbeing and Health is one of the key projects in the current Finnish Government Program aiming to provide services based on customer needs emphasizing early support, preventive methods and efficient customer-oriented service chains across administrative boundaries. Also, active and healthy lifestyles and eating habits will be promoted as well as taking responsibility for one’s life. The Wellbeing and Health project also addresses the families by implementing low threshold services taking the needs of children, parents and the entire families into consideration. (Finnish Government 2015.)

The Finnish healthcare and social services will also be affected by the Health, Social Services and Regional Government reform, which is one of the biggest administrative and operational renewals ever in Finland. The aim of this reform is to transfer the organization of healthcare and social services and other regional services to counties as of 1 January 2019. (Finnish Government 2016.)

National Service Architecture program will enable the interoperable digital service infrastructure allowing easy data transfer between organizations and services. The program will create a national level service (data transmission) layer, shared service views for citizens, businesses, and public administration agencies and a new national electronic identification solution. The program aims to simplify and facilitate transactions between residents, businesses, communities and the authorities. Furthermore, the program seeks to promote transparency in the public administration and to improve the quality of the government services by driving the cost-effectiveness of e-services and improving the interoperability of information systems and sharing of information. The objective is also to encourage businesses to access public government information resources and services and to support the national economy by improving the public administration and the creation of new business opportunities for the private sector. (Ministry of Finance 2016.)

Apotti is an extensive change project of the social services and healthcare field with the objective of building a regionally cohesive social services and a healthcare system that enables developing the operations and increasing their quality. There are currently hundreds of different data systems in use in the Helsinki Metropolitan Area which do not give enough support to the healthcare professionals' daily work, teamwork and development of operations. One of the selected development targets is the child welfare process, in which both a coherent process and shared development methods of operational models will be developed. In the new information and operations management system, all information about the customer or patient is up-to-date and available for treatment and service situations, enabling a better allocation of services to those needing them the most. The stakeholders participating in Apotti are Helsinki, Vantaa, Kirkkonummi, Kauniainen and the Hospital District of Helsinki and Uusimaa (HUS). The other HUS-district municipalities can also participate in the project. (Apotti 2016.)

There are also several other programs ongoing related to the digitalization of the public healthcare and social services e.g. the ODA Program (Omahoito ja digitaaliset arvopalvelut) for producing a new operating model for the basic healthcare and social services. Projects have also been initiated related to the development of public e-services e.g. Suomi.fi, which provides information and services for citizens, companies, and public authorities through one portal. Asiointitili program will enable a consistent, easy-to-use and secure solution for the

electronic interaction between the authorities and the customer through an account, which can also be connected to the existing electronic services offered by the authorities. (Ministry of Social Affairs and Health 2016.)

1.2 Background of the Thesis

This thesis is part of a larger research project called WeLive, which is a European Union Horizon 2020 (H2020) funded project, addressing ICT-enabled open government and developing a new concept of public administration based on citizen co-created mobile urban services. Laurea University of Applied Sciences is a member of the WeLive Consortium. (WeLive 2016.)

The WeLive project aims to transform the current e-government approach by facilitating a more open model of design, production, and delivery of public services leveraging on the collaboration of quadruple helix, i.e. between public organizations, citizens, research organizations, and companies. WeLive will enable a novel ecosystem of tools built on the open data, open services and open innovation paradigms, which are easily deployable in different public organizations, and which promote the co-innovation and co-creation of personalized public services through public-private partnership and the empowerment of all the stakeholders to actively take part in the value chain of a municipality or a territory. (WeLive 2016.)

Regardless of the vast amount of various programs and projects initiated in European, national and local level related to e.g. digitalization, future of public healthcare and social services, and open innovation, as well as cities integrating design thinking into their strategies, it is not yet a common practice of local authorities to design and develop services in cooperation with citizens. The citizen participation has remained superficial as stated in section 1.1. Even though the economic shift towards services has started to gain traction in the academic research, there is a clear need for both scientific and practical knowledge related to designing future public services in a genuinely citizen-centric way, utilizing open data, and fostering open innovation and the public-private-people partnerships (PPPP). Furthermore, there is a growing interest in exploring ways to use weak authentication methods (e.g. Facebook, Twitter or Google) in providing improved customer experiences as most of the current development programs and projects focus on services requiring strong authentication by the citizen.

1.3 Objectives and Delimitations

The purpose of this thesis is to design a digital wellbeing service concept for families with children through human-centred design process and methods. The aim is to create a holistic wellbeing service taking both the physical and mental wellbeing into consideration. Thus, areas such as nutrition and diet, extracurricular and cultural activities are also taken into account in addition to the social and healthcare services.

This thesis focuses on designing the digital wellbeing concept for families expecting and living with children under the age of 12 years old, i.e. children either in daycare or elementary school. Families with older children are considered to have very different challenges and needs compared to families with younger children. Therefore, families with older children were excluded from this thesis.

Perheentuki –service, which is a digital service channel currently offered by the City of Helsinki to the families with children and focusing on digitalizing social and healthcare related content and services, is used as a case example. The aim of this thesis is to elaborate and identify ways for the City of Helsinki to improve the customer experience of the Perheentuki users through an in-depth understanding of the customer needs, motivations and behaviour from the broad wellbeing perspective, combined with the driving forces by the social and technological trends. Furthermore, this thesis aims to analyse and elaborate the role of weak authentication methods, e.g. Facebook, Twitter, and Google, for enabling improved and more personalized customer experience. Examination of the research topic from a broad wellbeing perspective, as well as from the weak authentication point of view is expected to provide a wider set of opportunities and freedom in designing the service. The Finnish law highly regulates the social and healthcare services and require the use of strong customer authentication for ensuring the secure handling and privacy of personal healthcare data.

Therefore, the objectives of this thesis are to:

- Examine human-centred design approaches, process and methods in the public sector
- Design a comprehensive digital wellbeing service concept for families enabling a personalized and improved customer experience
- Identify concrete service ideas for improving the wellbeing of families
- Define the opportunities and benefits of weak authentication methods in enabling personalized customer experience

Furthermore, the aim of this thesis is to visualize the designed service concept with e.g. storyboards to illustrate how the service could work. Thus, this thesis will not include detailed interaction design or the development of functional prototypes or wireframes. The definition of the technical architecture and data systems required for implementing the solution are also excluded.

Furthermore, the scope is in designing the service concept from the citizen, i.e. the customer perspective. Therefore, the broader transformation of the City of Helsinki in providing wellbeing services, i.e. the design of service and customer oriented strategy, marketing, operations management and internal service production processes are excluded from this thesis.

1.4 Structure of the Thesis

This section explains the structure of this thesis report. Chapter 1 provides the introduction to the phenomena related to the increasing dominance of services both in the private and the public sector, opportunities enabled by open and citizen-driven service innovation, and new technologies in future healthcare services. Background, objectives, and delimitations for the thesis are also described in Chapter 1. In addition, the theoretical foundation and the key concepts for the thesis are presented.

Existing theories related to the paradigm shift from the goods-dominant logic (GDL) towards service-dominant logic (SDL) are presented in Chapter 2, as well as their implications for the public sector discussed. Themes related to service innovation and citizen participation in the public sector are also examined.

Chapter 3 describes the research methodology utilized in this thesis. The human-centred design approaches, i.e. service design, design thinking, goal-directed design and futures thinking are presented. The definition and principles of these approaches are described, and examples of e.g. service design processes are introduced.

The empirical research, i.e. the concept development utilizing a combination of the Double Diamond and the goal-directed design processes, is described in Chapter 4. All the tools and methods used in the design project are discussed from both theoretical and practical perspective. The overview, key features as well as the benefits of the service concept for different stakeholders are also presented in Chapter 4.

Chapter 5 presents the conclusions of this thesis project reflecting the design process and the methods utilized. The value and the applicability of the thesis results are described as well as prospects for future research presented.

1.5 Approach and Key Concepts

The viewpoint of this thesis is grounded in service marketing and management, applying human-centred design approaches, i.e. service design, design thinking, goal-directed design and futures thinking, in the concept development. Figure 1 illustrates the theoretical foundation of this thesis.

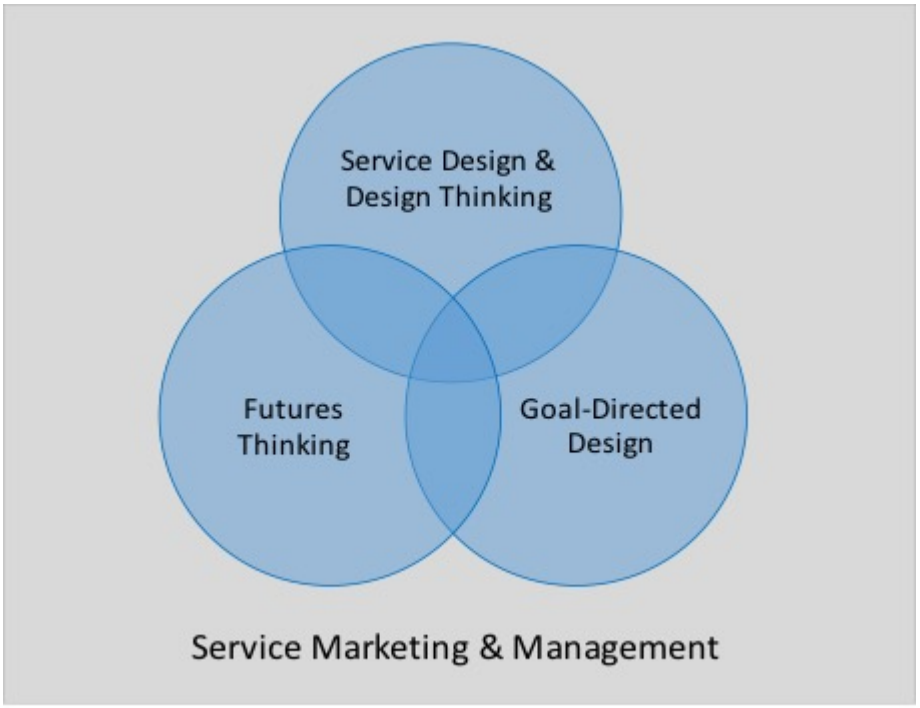

Figure 1: The theoretical foundation of the thesis.

The key concepts of this thesis are explained below to provide the reader an overall understanding of the central terminology in this thesis. The key concepts are e-services and e-government, wellbeing services, citizen as the customer and the user of the service, co-creation of customer experience, service concept, authentication, open data and mydata.

E-Services and E-Government

The business world has witnessed the emergence of two powerful long-term trends, the shifting of the economy from goods to services and the proliferation of the information economy and the electronic networks. These two trends have enabled the emergence of electronic services, i.e. e-services, which mean the service delivery over the electronic networks such as the internet. In the public sector, e-services refer to the delivery of information and services through the internet or other digital channels to different stakeholders (e.g. citizens, businesses and other members of the society) in a convenient, efficient and transparent manner. (Hu et al. 2009, 979; Hassan et al. 2011, 530; Abdellatif et al. 2013, 121.)

Wellbeing Services

According to Sillanpää (2011, 62), the welfare services consist of healthcare, education and social services, which have traditionally been provided by the public and private sector organ-

izations in Finland. In the City of Helsinki, the provision of the healthcare, social and education services have been divided into several departments e.g. the Social Services and Health Care Department responsible for the Perheentuki website; and the Early Childhood Care and Education Department.

However, the aim of this thesis is to study the overall wellbeing of the families from a holistic perspective. Therefore, in addition to the above-mentioned health and social services and education, the concept of wellbeing in this thesis includes areas such as the daycare, nutritional aspects as well as the extracurricular and cultural activities, e.g. hobbies and family events. In other words, all elements affecting and improving the physical and mental wellbeing of the families are taken into consideration.

Citizen as the Customer and the User of the Service

In this thesis, the term citizen is also used to describe the customer, who is using the wellbeing related services. In other words, the citizen is both the customer and the user of the service, even though the public management theory makes a distinction between these roles according to e.g. Osborne et al. (2013, 142-150). This difference arises from the notion that public services may sometimes have multiple and conflicting users with contradictory needs. In addition, the citizens themselves may have different motivations related to public services, i.e. they expect highly personalized services, but at the same time, they are conscious about how and what kind of public services are financed with tax revenues (Osborne et al. 2013, 142-150). Cooper et al. (2014, 62-89) and Goodwin (2009, 85-89) also discuss and emphasize the different roles there might be related to a service, i.e. sometimes the customer buying the service is not the same person as the actual user. Nevertheless, in this thesis both terms, customer and citizen, are used on an equal basis and representing the user of the service.

Co-Creation of Customer Experience

Organizations have embraced customer experience as a way of obtaining sustainable competitive advantages (Shaw & Ivens 2005, cited in Teixera et al. 2012, 363) and leading the academic literature to claim that customer experience will be the next competitive battleground (Pine & Gilmore 1998, cited in Teixera et al. 2012, 363; Prahalad & Ramaswamy 2004abc).

Meyer & Schwager (2007, cited in Teixera et al. 2012, 363) and Zomerdijk & Voss (2009, cited in Teixera et al. 2012, 363) define customer experience as the internal and subjective response customers have to any direct or indirect contact with the organization, i.e. customer experience being a holistic concept encompassing every aspect of the organization's offering.

Teixera et al. (2012, 364-365) explain that according to the service-dominant logic the customer experience is not designed, rather it is co-created through customer interactions with the several service elements, which form the context within which the experience takes place. Teixera et al. (2012) state that the customers co-create unique experiences through all their interactions with the service provider or organization across the different touch points. In these touch points, the customers respond to the various designed elements, some of which are not under the organizations or service provider's control. Thus, Teixera et al. (2012) state that the organization cannot expect to design customer experiences that follow a predicted outcome precisely. Instead, they can only develop situations better supporting the customers in co-creating their desired experiences (Forlizzi & Ford 2000, cited in Teixera et al. 2012).

Service Concept

Edvardsson et al. (2000, cited in Meyer Goldstein et al. 2002) define the service concept as "a detailed description of the customer needs to be satisfied, how they are to be satisfied, what is to be done for the customer, and how this is to be achieved." Clark et al. (2000, cited in Meyer Goldstein et al. 2002), Johnston and Clark (2001, cited in Meyer Goldstein et al. 2002) take this definition further by stating that the service concept describes service operation (i.e. the way the service is delivered); the service experience (i.e. the customer's direct experience of the service); service outcome (i.e. the benefits and results the service offers for the customer); and the value of service (i.e. weighting the inherent benefits of the service perceived by the customer against the cost of acquiring the service).

Meyer Goldstein et al. (2002, 121-125) emphasize the importance and essential role of the service concept in service design and innovation, and not merely as the central element of the design process, rather offering a way to concretize the nature of the service. According to Meyer Goldstein et al. (2002), the service concept not only describes the *how* and the *what* of service design, but assures the integration between them. The service concept can also support in mediating between customer needs and the organization's strategic intent (Meyer Goldstein et al. 2002).

Authentication

Authentication provides means for ensuring that the customer of e.g. an online service is who she/he claims to be. The customer can authenticate him/herself by providing something he/she knows (e.g. password or PIN code), has (e.g. a key or a token such as an NFC tag) or

something the customer is (e.g. biometrics such as fingerprint, voice or face recognition). (European Union Agency for Network and Information Security 2016.)

There are several authentication methods available that can be divided into two groups: weak and strong authentication. *Weak (or light) authentication* takes place when the customer uses his/her user IDs and passwords, or social media credentials (e.g. Facebook, Twitter or Google). Strong authentication is required when the online service processes confidential information or money. In Finland, there is currently the Vetuma service for strong authentication, in which the customer can choose to authenticate him/herself with the so-called bank codes, i.e. using Tupas authentication (Tupas service is a method defined by the Federation of Finnish Financial Services for identifying online users with bank codes), with mobile authentication provided by the mobile operators (i.e. mobile certificate); or with the electronic identity card provided by the Population Register Centre. The strong authentication is governed by the Finnish law *Laki vahvasta sähköisestä tunnistamisesta ja sähköisistä allekirjoituksista*. There is also the law *Laki sosiaali- ja terveydenhuollon asiakastietojen sähköisestä käsittelystä* governing the electronic processing of personal customer healthcare and patient data. (Finlex 2007; Finlex 2016; Finnish Communications Regulatory Authority 2016; Julkisen Hallinnon Tietohallinnon Neuvottelukunta 2016.)

Open Data and MyData

Open data refers to government information made available for anyone to use freely and without cost. In addition, companies, other organizations, and citizens can publish open data. The openness of data means that the data has been made as easy as possible for anyone to experiment and develop new services. The level of transparency can vary in different aspects. The data needs to be public information for it to be opened for public use, i.e. sensitive or otherwise compromising information cannot be published to protect the individuals' rights to privacy and the general safety of the society. (Helsinki Region Infoshare 2016.)

MyData refers to the ways of managing and organizing personal data by placing the person at the centre of the information management to foster and protect the data privacy. In other words, an individual can utilize their own data, share, exchange or sell it on to other services. MyData model can enable the development of new kinds of services and business models and will presumably drive a systemic change fundamentally transforming the established models of managing data in the society. (Poikola et al. 2016; Ministry of Transport and Communication 2016.)

2 Towards Service-Dominant Logic and Citizen-Driven Innovation in the Public Sector

The paradigm shift towards the service-dominant logic and its clear relevance also to the public sector is described in this chapter. In addition, the current state and opportunities provided by the citizen participation in the service innovation are discussed.

2.1 The Paradigm Shift from Goods-Dominant Logic to Service-Dominant Logic

As discussed in section 1.1, the economies and the economic growth of the advanced countries is being dominated by the service sector. The modern economies are shifting away from a manufacturing way of thinking, i.e. goods-dominant logic (GDL), towards service-dominant logic (SDL). (Bitner et al. 2008, 66; Polaine et al. 2013, 28; Zeithaml et al. 2013, 5; Lusch & Vargo 2014; Lüftenegger 2014, 1; Edwards et al. 2015, 76; Randhawa & Scerri 2015, 28.)

According to Lusch and Vargo (2014, 49) and Lüftenegger et al. (2012, 2) the SDL has been developed by marketing scholars aiming to develop the marketing theory, which has traditionally been based on the GDL, as demonstrated e.g. by the wellknown McCarthy's 4P model (price, product, place and promotion).

The GDL is also referred in the literature as "manufacturing logic" and "old enterprise logic" according to Lüftenegger (2014, 12) and Lusch and Vargo (2014, 4). The GDL is rooted in the industrial revolution when the production shifted from the households to the factories, separating the roles of a consumer and a producer (Prahalad & Ramaswamy 2004a, 6; Ojasalo 2010, 171; Lüftenegger 2014, 12). In this manufacturing paradigm, the role of an organization was to create value by maximizing production for the sale of goods, i.e. the organization earns money in return of the created value within the value chain (value-in-exchange) (Lusch & Vargo 2014, 4-8). In this mindset, all organizations have a position in the value chain, adding value to inputs and then passing them to the customers, who are the actors at the end of the value chain (Ojasalo 2010, 171; Lusch & Vargo 2014, 9).

Furthermore, in GDL the customers are seen through segments, which the organizations try to capture and act on (Prahalad & Ramaswamy 2004a, 6; Lüftenegger 2014, 12). Organizations operate autonomously, design products and production processes, craft marketing messages with no or little interference from customers, who are considered as an external stakeholder outside the organization (Prahalad & Ramaswamy 2004a, 6; Ojasalo, 2010, 171). The focus of quality in organizations is on improving internal processes and on developing product features and functionalities (Prahalad & Ramaswamy 2004b; Ojasalo 2010; Zeithaml et al. 2013).

Lüftenegger et al. (2012, 2) state that the SDL "is focused on value co-creation as a collaborative process and the integration between the producer, the consumer, and other supply and

value network partners." Lüftenegger et al. (2012) also see this paradigm shift towards SDL emerging now due to the service and information revolution enabled by IT systems and technology in learning and capturing information about the customers, i.e. providing tools and capabilities to customize and personalize services as well as build customer relationships.

According to Ojasalo (2010, 171-174) and Ojasalo et al. (2014), the SDL emphasizes the co-creation of value, value-in-use, and value-in-context, which are proposed as alternative views for replacing the traditional value-in-exchange logic and in response to the paradigm shift towards service-dominant thinking. Ojasalo (2010) and Ojasalo et al. (2014) describe that the central idea of the SDL is that the value emerges when the offering is used and experienced by the customer (value-in-use). Furthermore, they state that organizations operating according to the SDL, offer value propositions, and that value is always co-created together between the service provider and the customer. In this logic, organizations are the facilitators and co-creators engaging themselves in the customers' value creation processes, which mean that the customers not only define the value but control the value creation in their own processes (Prahalad & Ramaswamy 2004a; Ojasalo 2010; Ojasalo et al. 2014). Thus, the role of the service provider has shifted from being a sole producer of value into a supporter of value. For adopting the SDL in its business, the organization needs to deeply understand and support the customers' value creation processes (Ojasalo 2010; Ojasalo et al. 2014).

According to Prahalad & Ramaswamy (2004a), the informed, empowered, networked and active customers are increasingly co-creating value with the service providers. They state that the interaction between the customer and the companies is becoming the locus of value creation and value extraction. Ojasalo (2010, 173) describe that the interaction takes place in multiple touch points through various channels in complex environments including physical elements (e.g. spaces, signs, and technology), processes and people (e.g. employees), all offering opportunities for value creation.

In value co-creation, the customers are proactively involved in every stage of service development enabling the service provider potentially to identify customers' latent needs and wants (Ojasalo, 2010). This learning and new insight allow the organization to co-create services and to acquire deep customer insight about what creates value for the customer, providing the organization opportunities for differentiation and competitive advantage (Ojasalo 2010, 174). According to Randhawa and Scerri (2015, 28), "the process of value co-creation provides organizations with an enhanced opportunity and ability to deliver elevated service offerings resulting in service innovation."

According to Ojasalo et al. (2014) the SDL has substantially increased the knowledge and understanding of the business thinking and value creation, but most of the organizations still

continue to operate and design their business regarding the GDL. Bitner et al. (2008, 66) argue that some of the reasons for the lack of attention to the service innovation "are rooted in the remnants of the industrial revolution and the habitual fascination with tangible products and hard technologies as a source of product innovation, as well as an underlying belief that services have no tangible value." Based on the research study by Ojasalo et al. (2014) the reasons may not always be related to the ignorance towards the service thinking. The tools and models, which the organizations use for planning and decision making, are quite often still based on the GDL. Therefore, it may be that the organizations simply may not know the tools and how to implement SDL into their business. Lüftenegger et al. (2012, 2) also argue that it can be challenging for an organization to choose a new strategic direction derived from a new dominant logic due to the current mindset and mental models of managers. Thus, the collective wisdom of an organization can prevent the adoption of the new ways of doing business and required in the SDL, causing a phenomenon called in the literature as "the dominant logic trap" (Lüftenegger et al. 2012, 2).

In recent years, however, the economic shift towards services has started to gain traction in the academic research as well as in the business world attempting to find new perspectives, frameworks and tools for new business and service innovation in the service-dominant world. (Bitner et al. 2008, 66; Zeithaml et al. 2013, 5; Lüftenegger 2014, 1.)

2.2 The Service-Dominant Logic in the Public Sector

Osborne et al. (2013, 135) and Radnor et al. (2014) criticize that the prevailing public management theory is no longer appropriate due to focusing on intraorganizational processes instead of interorganizational delivery of public services, and due to drawing upon management theory derived from the GDL ignoring the public services as "services". Osborne et al. (2013, 135-136) and Radnor et al. (2014) argue for a public service-dominant logic approach as it reflects the reality of contemporary public management more accurately, emphasizing the governance of interorganizational and cross-sectorial relationships and the effectiveness of the public service delivery systems instead of the individual public service organizations. They also state that the paradigm shift towards service-dominant theory is more relevant for the public services than the traditional GDL approach.

Osborne et al. (2013, 135-136) and Radnor et al. (2014, 405-406) state that the relationships between the customers and the public service organizations are not transactional in nature. Instead, public services such as social and healthcare, education, community development are all services rather than concrete products. Public services fit the characteristics of services as also they are intangible, produced and consumed simultaneously, and the customer is co-creating the service together with the service provider (Osborne et al. 2013, 135-136).

Osborne et al. (2013, 138) state that the debate related to the public services management has been executed in almost ignorance of the theory and research about the service management and the SDL – despite their prominent relevance to also public sector. Osborne et al. (2013, 138-139) argue that influencing and understanding the customer's service expectations is crucial to their experience and satisfaction with the service, fundamentally affecting the effectiveness and impact of the service. Osborne et al. (2013, 139) further state that one of the most significant implications of the characteristics of services in the public services domain is that the performance of a public service is equally about the subjective experience of the service by the customers and the efficient design in relation to its purpose. The subjective experience of the customer is formulated by their expectations of the service as well as their perceptions of the service delivery process. Particularly relevant in this context are the ”moments of truth”, when the customer and the service provider interact as these interactions affect both the customer satisfaction and the service outcomes (Osborne et al. 2013, 139).

Osborne et al. (2013, 142-143) and Trischler and Scott (2016, 733) argue that customer engagement and involvement should be included systematically in all stages of the public service lifecycle: from identification and prioritization of customer needs, to service development and definition of service promise, and to the service enactment process. According to them, the adoption of SDL in the public services and citizen engagement adds value to the customer regardless of their role as a citizen or a user of the service. Furthermore, a central element of the SDL is the co-creation of services seeking to identify the tacit knowledge and needs to design new or improve existing services, which is imperative and relevant also for the public services development (Osborne et al. 2013, 146). Thus, the experiences and the thorough understanding of the customer should be placed at the heart of an efficient public service development and delivery (Osborne et al. 2013, 146). Ultimately, the citizen involvement leads to increased usability and usefulness of the designed services, and improves the cost-benefit through saving money as potential problems can be identified and fixed early on in the design process (Van Velsen et al. 2009, 477).

In addition, the technological development, the rise of e-services and digital governance have the potential to enable genuine customer involvement and the design of meaningful services. However, digital services pose new challenges related to e.g. trust and privacy (Hassan et al. 2011, 536; Osborne et al. 2013, 150).

2.3 Service Innovation and Citizen Participation in the Public Sector

Services are characterized by intangibility, heterogeneity, perishability, interactivity and simultaneous production and consumption (Zeithaml et al. 2013). The nature of services makes the innovation different from the innovation of goods. According to Zeithaml et al. (2013) and

Randhawa & Scerri (2015, 29-31), the service innovation process includes high-level of interaction between the customer and the service provider, in which technology plays a key role.

Service innovation is considerably interactive and systemic in nature. Companies and organizations are rooted in multi-layered service value networks consisting of systemic entities, e.g. suppliers, intermediaries, customer, and partners, enhancing the opportunities to co-innovate. The connections in the value network can be human to human, technical to technical or human to technical, which emphasize the importance of human-centred thinking and technology in the service innovation. (Randhawa & Scerri 2015, 36-37.)

The service sector consists of a broad range of markets from consumer services, e.g. hotels and bank services, to business services, e.g. IT and legal services, as well as large-scale public services such as health and education services. In these different service areas, the usage of technology is diverse causing the innovation in services involving the transformation of various aspects, e.g. the service development and design as well as the service delivery and management. Innovation in services is seen as an interplay of service concepts, delivery systems, customer interfaces, and technologies. Service Innovation often implies new ways of viewing and using the service by the customers. (Randhawa & Scerri 2015, 36-37.)

In the public sector, most e-government designs are still dominated by the top-down model with a limited capacity of knowing the preferences of a single customer and providing value-added services (Hui & Hayllar 2010, 127-128; Saad-Sulonen 2014, 18-21). However, in recent years, some governments have been experimenting with e.g. working groups and interest segmentation for improving the e-service delivery by bundling information and e-access to services, which according to Hui and Hayllar (2010) are of particular relevance and value to the group being targeted. They state that as more interactions with the customer occur, the service providers can gather more information about wants or needs of the target group and can therefore further develop and refine the information and services being offered, thus enhancing the customer-centric delivery and adding new value. Hui and Hayllar (2010,127-128) emphasize, however, that most of such developments will not enable the provision of tailor-made or personalized services to customers.

Digital devices, e.g. personal computers and mobile phones, social networking platforms such as Facebook, or blogs and wikis have opened up the possibility for anyone to create, publish and share digital content. According to Saad-Sulonen (2014, 18-21), this has played a major role in the ways the citizens have organized themselves around the issues and topics of interest; and driving e.g. the emergence of self-organized local communities. The new realities of the digital age and the capabilities to operate with everything digital, have given birth to new

opportunities of citizen participation as a variety of tools have been introduced for facilitating the communication between citizens and public sector organizations according to Saad-Sulonen (2014).

Saad-Sulonen (2014, 117) explains that citizens and the city representatives have so far communicated around problems and suggested solutions instead of truly worked together with shared information. The options offered for citizen participation have typically followed the consultation model, in which the citizens are given the possibility to comment on presented solutions. According to Saad-Sulonen (2014), only the most active citizens are likely to sustain an involvement with such models for participation.

Saad-Sulonen (2014, 21) states that there is growing interest in exploring ways to utilize social media e.g. Facebook or Twitter in citizen participation. According to her, several public sector organizations have created a presence for themselves in these networking services, but so far with varying degrees of success. Saad-Sulonen (2014) elaborates that the participation has been applied from a city-centred and consultation based point of view and that the attempts for utilizing e.g. social media in this context have remained superficial.

However, when the exchange of digital content and information between the citizens and the public sector organizations will be technologically possible, bridges are automatically created according to Saad-Suhonen (2014). She argues that the creation and availability of shared repositories of digital content facilitate the collaboration between e.g. the city experts and the customers.

3 Human-Centred Design as the Premise for the Service Concept Development

Chapter 3 introduces the research methodology used in this thesis, consisting of the following human-centred design approaches: service design and design thinking, goal-directed design and futures thinking. The definition, principles, and processes for these approaches are described as well as examples of tools and methods given. The empirical research along with the tools and methods utilized are described in Chapter 4.

3.1 Service Design: Definition, Principles, and Process

According to Stickdorn and Schneider (2011, 28-34), there are several definitions of service design in the academic and business literature. For instance, Curedale (2013b, 14-17) defines service design as a human-centric approach seeking to uncover the unmet or even latent

needs with innovative solutions, which at its best provides a differentiated, unique and competitive advantage for the organization. Randor et al. (2014, 409) describe service design as an approach, in which the customers are the primary focus of the service delivery and in which the customer experience should be viewed holistically rather than concentrating on individual elements forming the service. Ostrom et al. (2010, cited in Trischler & Scott 2016, 722) define service design as "the orchestration of clues, places, processes, and interactions that together create holistic service experiences for customers, clients, employees, business partners, or citizens." According to Trischler and Scott (2016), this definition emphasizes two central aspects of service design, the customer-centred design, and the service system approach.

Regardless of the exact definition, service design aims at finding an optimal balance between business needs (e.g. return on investment, growth, competitive advantage), technology (e.g. internet, methods and tools), people (e.g. usability, values, experiences and interactions), and context in which the service takes place, according to Curedale (2013b, 14-17). In other words, for the service to be successful, it needs to be technologically feasible, viable from business strategy and model perspective and desirable from the customer point of view (Brown 2008, 86; Brown 2009). The balance between these boundaries is illustrated in Figure 2.

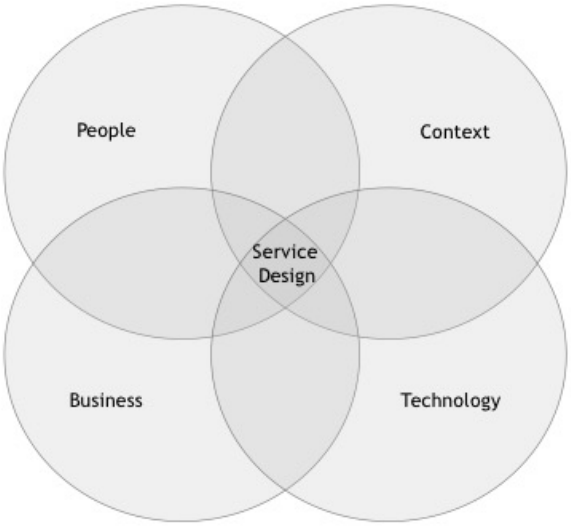

Figure 2: The boundaries for creating successful concepts. Adapted from the model illustrated by Curedale (2013b).

Stickdorn and Schneider (2011, 28-34) describe service design as an interdisciplinary and evolving approach combining various tools and methods from different fields as well as a way

of thinking incorporating five core principles: user-centred, co-creative, sequencing, evidencing and holistic, described in more detail below.

User-Centred

Gaining authentic customer insights requires a thorough application of various methods and tools enabling the service designers to understand the customer's individual needs and service experiences in a wider context. The services should always be designed through the eyes of the customer. The user-centred approach and understanding the different needs and mindsets of different customers is the basis of service design thinking; and offers a common language for the interdisciplinary service design teams. (Stickdorn & Schneider 2011, 34-35.)

Co-Creative

The role of service design is to generate a co-creative environment facilitating the service development with heterogeneous stakeholder groups, such as customer groups, employees, digital interfaces and other stakeholders in the value network. There are several methods and tools available for gathering insights from these different actors and perspectives in all stages of the service design process. The co-creation and the facilitation of the interaction among the different stakeholders is a fundamental part of service design and essential for increasing customer satisfaction, loyalty, and long-term engagement. (Stickdorn & Schneider 2011, 39.)

Sequencing

Services are created through the interaction between the service provider and the customer in a dynamic process taking place over a period of time. The role of service design is to deconstruct the service processes into single touch points and interactions, i.e. service moments, between the service provider and the customer. These touch points can happen through different interfaces, such as human to human and human to technology. These service moments should be visualized and well organized as a sequence of interrelated actions, enabling a pleasant rhythm and progress of the customer's mood by communicating the story inherently to the service through each touch points. (Stickdorn & Schneider 2011, 40-41.)

Evidencing

Due to the intangible nature of services, physical evidence or artefacts, e.g. brochures, emails, bills or signs, can enhance the customer experience by triggering positive associations and memories about the service moments. Physical or tangible service evidence can therefore prolong the service experiences from the actual service period far into the post-service time,

potentially increasing the customer loyalty and engagement. It is crucial however that the service evidence is designed as an integral and natural part to the service and the sequence of touch points. (Stickdorn & Schneider 2011, 42.)

Holistic

When designing services, the wider context of the environment, in which the service process takes place, should be considered. This means that the service designers should understand and be consciously aware of what the customers may subconsciously perceive with their senses about the entire service environment. These subconscious perceptions can have a profound impact on the service experience. Furthermore, when designing a detailed touch point, it is necessary to understand the holistic perspective of the whole customer journey and thus, to know where this particular touch point lies in relation to the entire customer experience. (Stickdorn & Schneider 2011, 45.)

Service Design Process

According to e.g. Stickdorn and Schneider (2011) and Tschimmel (2012), there are several service design processes or frameworks available consisting of usually three or even up to seven stages. The nature of service design is such that it is impossible to provide one straightforward and easy to follow process ensuring the success of every service design project (Brown 2009, 15-16). Nevertheless, despite the number of stages, all service design processes share the same logic and mindset (Stickdorn & Schneider 2011; Tschimmel 2012).

Stickdorn and Schneider (2011, 124) state that the service design processes are presented in having a clear and chronological structure allowing to take virtually any idea from concept to outcome in organized and thorough fashion. However, in reality, the service design processes are nonlinear, exploratory and iterative by nature. Stickdorn and Schneider (2011, 124) explain that it is quite common that the designers may need to go back to the previous stages of the process at any time during the design project or sometimes even start from scratch. Using a service design process instead of a traditional, linear and milestone based processes will lead to better results, i.e. truly customer centred solutions (Brown 2009; Stickdorn & Schneider 2011; Tschimmel 2012).

The iterative approach is fundamental for service design processes enabling the designers to learn from the mistakes and take the process in the right direction based on these learnings. The key is to make those mistakes as early as possible in the design process and before actually implementing the new concept. The cost of iteration is marginal compared to making

changes to the concept that has already been launched full scale. (Liedtka & Ogilvie 2011; Stickdorn & Schneider 2011.)

Below, some of the most wellknown service design processes are introduced.

Exploration, Creation, Reflection and Implementation

Stickdorn and Schneider (2011, 126-135) present a service design process that has been divided into four stages: exploration, creation, reflection and implementation, illustrated in Figure 3. According to Stickdorn and Schneider (2011, 125-127), the service design process can start at any stage, e.g. directly at prototyping if there is already a clear understanding of the service idea. Ultimately, the first step in each service design project should be to develop the process suitable for that particular context (Stickdorn & Schneider, 2011).

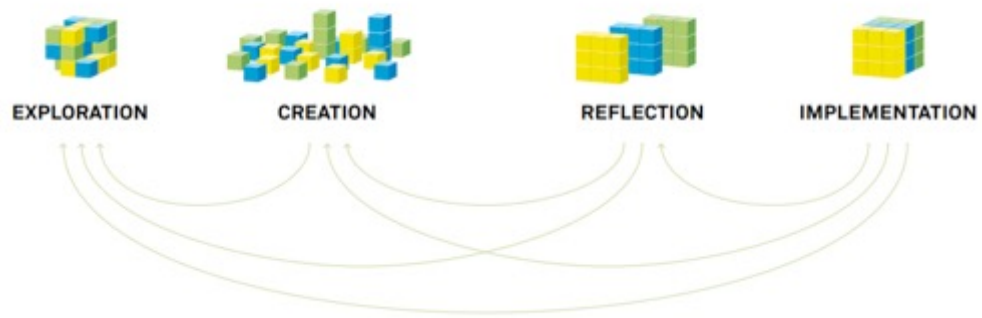

Figure 3: The service design process defined by Stickdorn and Schneider (2011).

In the *exploration* phase, the service designer's task is to identify the problem he/she should start working with and to create an understanding of the maturity of the client company related to service design (Stickdorn & Schneider 2011). The next step is to gather insights and empirical data via different tools and methods. Thus, according to Stickdorn and Schneider (2011), the key objective of the exploration phase is to define the problem and gain a clear understanding of the situation from existing and new customers' point of views.

During the *creation* phase, the objective is to create possible solutions based on the problems identified and insights generated (e.g. customer needs, motivations, and expectations) in the exploration phase. Furthermore, it is crucial to take the service provider's processes and constraints into consideration when developing the service concepts. (Stickdorn & Schneider 2011.)

Reflection stage means testing the ideas via prototyping (e.g. sketching images or wireframes) and gathering feedback from customers to iterate the solution to become even better and eventually matching the customers' expectations (Stickdorn & Schneider 2011). Testing an intangible service differs from prototyping a tangible product, i.e. different tools and methods are needed, e.g. storyboards, videos, service staging and roleplays enabling the customers to gain a mental image of the future service concept (Stickdorn & Schneider 2011).

The successful *implementation* of a new service concept usually requires elements from change management according to Stickdorn and Schneider (2011). The implementation has to be planned properly and results reviewed after the actual implementation has taken place (Liedtka & Ogilvie 2011; Stickdorn & Schneider 2011).

The implementation should be based on the consistent service concept developed and tested in the previous stages of the service design process. There needs to be clear communication including the emotional aspects of the service, i.e. the desired customer experience the service provider aims to offer for its customers via the new or improved service. Employee engagement is one of the key success factors for the implementation. (Bitner et al. 2008; Stickdorn & Schneider 2011; Zeithaml et al. 2013.)

Double Diamond Model

The Double Diamond model (or 4D model) by the Design Council illustrates well the divergent and convergent nature and stages of the service design process (Tschimmel 2012). The model has been divided into four distinct phases, discover, define, develop and deliver, similarly as in the service design process defined by Stickdorn and Schneider (2011). The Double Diamond model is illustrated in Figure 4.

In the *discover* phase, the designer is searching for new opportunities, new markets, new information, trends and new insights. The *define* stage acts as a filter in which the initial insights are reviewed, selected or discarded. Furthermore, the define phase also includes the preliminary development of the ideas. (Tschimmel 2012.)

In the *development* phase, the design led solutions are developed, iterated and tested by multidisciplinary teams and using the service design tools and methods. In the *deliver* stage, the service concepts are taken through final testing, signed-off, produced and launched. Various tools and methods can be used in each stage, depending on the desired outcome. (Tschimmel 2012.)

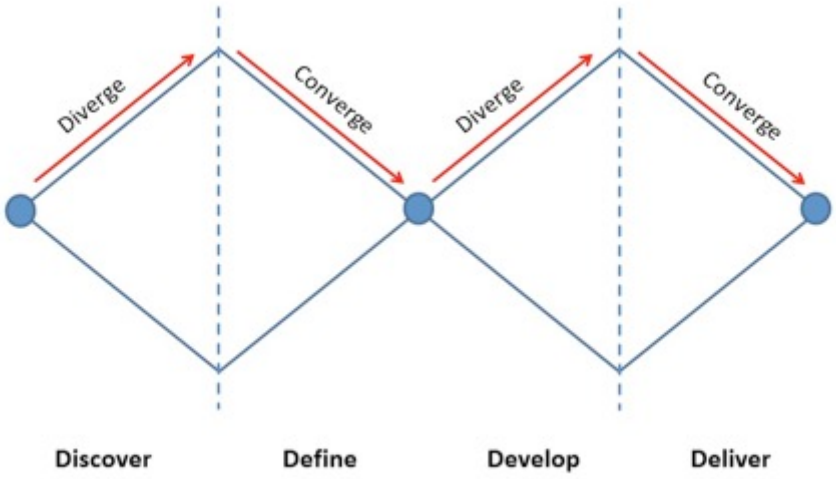

Figure 4: The Double Diamond process. Adapted from the model presented e.g. by Tschimmel (2012).

Inspiration – Ideation – Implementation (3 I Model)

The 3 I model was developed by IDEO in 2001 in the context of social innovation (Brown 2009). As IDEO was increasingly asked to work on challenges and themes far away from traditional design (e.g. healthcare, learning environments), they wanted to distinguish this new type of experience oriented design work from industrial design. (Brown 2009; Tschimmel 2012, 6.)

The *inspiration* stage includes the following phases: the identification of the service design problem motivating the search for solutions; the elaboration of the design brief providing the service design team a framework; and the observation of the customers for gathering deep insights about the behaviour and needs of the users in their own environment (Brown 2009, 16; Tschimmel 2012, 6).

The *ideation* stage includes the process of generating, developing and testing ideas. In this phase, the interdisciplinary service design team aims to synthesize the observations and learnings they have gathered in the inspiration phase into insights reflecting opportunities and ideas for new solutions, i.e. the ideas for solving the initial problem or opportunity are brainstormed, and visual representations of the new service concepts are made. The selected concepts are tested, iterated and improved through prototyping. (Brown 2009, 16; Tschimmel 2012, 6.)

The *implementation* phase takes the project from concepts to the market, i.e. once the final product or service has been created based on the feedback gathered from the users, a communication strategy is developed to help communicate the designed solution inside and outside the organization. (Brown 2009, 16; Tschimmel 2012, 6.)

IDEO has also designed the *HDC model* (hear, create and deliver) as a toolkit for Non-Governmental Organizations (NGOs) and social enterprises solving problems in the developing and impoverished world. Similar to the 3 I model, the HCD framework has three phases, which are essential for a human-centred design process. (Tschimmel 2012.)

What is? What if? What wows? What works?

The service design process defined by Liedtka & Ogilvie (2011, 21) deals with four basic questions, representing the four stages of the process illustrated in Figure 5: what is? what if? what wows? and what works? The divergent and convergent thinking of service design is represented by the widening and narrowing strings around each question (Liedtka & Ogilvie 2011).

The *what is* -phase explores the current reality, aiming to define the job the customer is trying to get done and what are their current problems or dislikes. Thus, the framing of the design challenge should be based on the as-is situation. The *what if* -phase is about synthesizing the information and emerging patterns gathered in the what is -stage, developing the hypothesis about the possibilities and the desirable futures as well as generating ideas and developing concepts based on these identified opportunities and future visions. In the *what wows* -phase, the most promising concepts, meeting the customer needs and providing attractive profit potential, are prioritized and tested in the market via rapid prototyping to collect real-time data about the concept performance. The final stage, i.e. *what works*, is about determining what works by inviting customers into an active and hands-on co-creation conversation and taking the service concepts into the market via careful launch planning and trials, ensuring that the concept will persuade the customers and get the awareness required for success. (Liedtka & Ogilvie 2011, 21.)

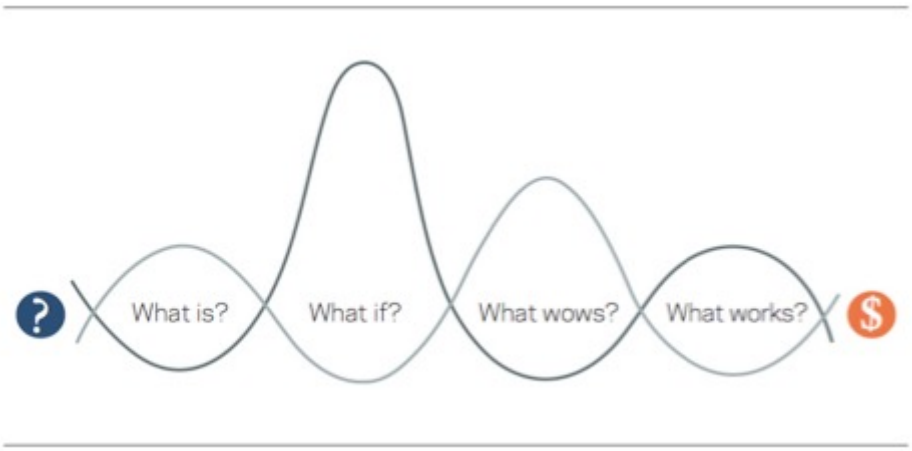

Figure 5: The service design process by Liedtka & Ogilvie (2011).

Service Design process by Moritz

Moritz (2005, 123) presents the service design (SD) process as a set of tasks that have been grouped into six categories: *SD understanding, SD thinking, SD generating, SD filtering, SD explaining* and *SD realizing*. According to Moritz (2005, 123), the categories enable an easy application of the list of tasks and also tools to be utilized in a service design project. All sections have their objectives (e.g. understanding the customer), and each task acts as an intermediary step helping to reach these goals. The service design process by Moritz is illustrated in Figure 6.

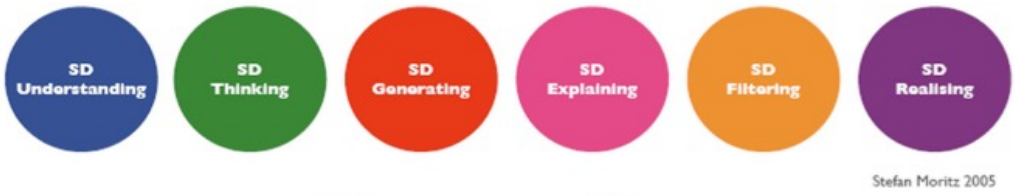

Figure 6: The service design process described by Moritz (2005).

3.2 Design Thinking

Another approach very closely related to service design is design thinking. According to Miettinen and Kuure (2013, 30), design thinking is an integral part of service design, enabling the creation of concepts, solutions, and future service experiences that are usable and desirable for users, and efficient and distinctive for the service providers.

Design thinking is a human-centred way of solving problems with practical and innovative solutions based on customers' unmet needs. It provides a framework for utilizing an iterative

process with diverging and converging stages, involving a multidisciplinary team. Design thinking can be applied to developing products, services, spaces, architecture, experiences, and strategy. Design thinking utilizes collaborative tools and methods combining analytical and creative thinking, emphasizes observation, collaboration, co-designing with customers and other stakeholders, fast learning, visualization, storytelling, rapid prototyping and concurrent business analysis. Empathy and human-centred approach are fundamental and the most important features of design thinking. Everything begins by thinking about the people, gaining insights, understanding the customers' practices, interactions, contexts, latent needs, emotions and hidden motives as well as identifying the problem that the customers are experiencing. Design thinking focuses on improving the quality of the user experience and aims at creating meaningful solutions for the customers. (Brown 2008, 86; Brown 2009, 16-19; Lockwood 2009, xi-xv; Tschimmel 2012, 4; Curedale 2013a, 13-31; Curedale 2013b, 28-30; Ojasalo et al. 2015, 197-198.)

As service design usually starts with discovering what processes need improvement and how to best serve customers taking their needs into consideration, the value of design thinking lies even beyond that. According to Lockwood (2009, xv) and Ojasalo et al. (2015, 197), design thinking enables the creation of new service concepts to come to life with various methods and tools, i.e. design thinking refers to the designers' general approach and service design to applying design thinking in service contexts.

3.3 Goal-Directed Design

The goal-directed design process offers a comprehensive framework for creating human-centred products and services, especially in the digital age, taking all aspects of developing digital services and software into consideration (Goodwin, 2009).

Goodwin (2009, 3) defines design as "the craft of visualizing concrete solutions that serve human needs and goals within certain constraints." Goodwin (2009) calls the visualization of the concrete solutions being the essence of design, regardless of the solution being a tangible product or a digital solution. Goodwin (2009, 4) emphasizes that design must serve human needs and goals. Thus, all the developed solutions have a purpose, and they help customers accomplish their goals in an efficient, effective and enjoyable way. Constraints or limitations, such as time, money, materials, regulatory requirements and the digital or physical form of the solution, are always present in design projects according to Goodwin (2009, 4).

The fundamental foundation of developing successful products and services through goal-directed design is to concentrate in achieving the goals of different stakeholders. Even though the primary focus is on the customer goals, the method also takes the service providers goals

into consideration. According to Cooper et al. (2014, 75- 80), there are three types of customer (i.e. the user) goals: life goals, end goals, and experience goals.

Life goals present the customer's personal aspirations that typically go beyond the context of the product or service being designed, e.g. long-term desires and motivations such as "living a good life". These goals should form the focus of the product's or service's overall design, strategy, and branding. *Experience goals*, on the other hand, are simple, universal and personal, describing how the customer wants to feel while using the product or service, e.g. "feeling reassured about security and sensitivity". *End goals* present the customer's motivation for performing the tasks associated with using a particular product or service, i.e. the solution designed helps the customer to accomplish his/her end goal e.g. "stay connected with friends and family". (Cooper et al. 2014, 75-77.)

The goal-directed design incorporates the design of the behaviour, visual and physical form of a solution (Goodwin 2009, 6). According to Goodwin (2009, 407-409), good design is ethical, purposeful (enables the customer to accomplish his/her goals in the most natural way in the right context), pragmatic, and elegant (i.e. the simplest complete solution providing the necessary features). Goodwin (2009) calls these characteristics as design values.

Goodwin (2009) states that the purpose of the goal-directed design method is to provide a framework for developing great solutions, instead of offering a strict set of rules and constraints. The framework combines four components: principles, patterns, practices, and process (Goodwin 2009, 7-8). These four elements are described below.

Principles

Principles provide guidelines for designing solutions in particular circumstances. Not all principles, however, are appropriate in all contexts and not all principles are equal. For instance, a visual design of television user interface differs significantly from the visual design of a handheld device. A principle applicable in a particular context needs to support the customers in achieving their goals and minimizing the effort (e.g. cognitive, visual, memory and physical work) in doing so. Thus, principles help designers to organize and portray information with minimal effort required from the user. Principles provide guidelines from high-level values to small details, and in between guiding the interface structure and behaviour. (Goodwin 2009; 7-8, 406-407.)

Patterns

Patterns are important in solution design and can be considered the building blocks of the digital services (Goodwin 2009; 9, 413-423). Goodwin (2009) discusses different kinds of patterns for form and behaviour. Goodwin (2009) groups them into patterns that organize objects and activities, such as an organizer or workspace pattern (e.g. iTunes, Adobe Reader and email solutions); hierarchical menu pattern, in which the user moves from one activity to another through the main menu (e.g. DVDs, mobile phones and MP3 players); parallel workspaces and modes, which provide the navigation mechanism everywhere in the application (e.g. web browsers and Google search) and are most useful when the user is performing tasks and using a single solution; and wizards and tunnels that provide an enforced sequence of actions forcing the user to go through each step (e.g. installation programs for computer software and tutorials in mobile applications). Combining different patterns provide considerable flexibility in the design of digital solutions. Patterns provide predictable behaviour for the user, why it is crucial to have consistency in using them and also to make sure the patterns are appropriate for the context of use (Goodwin 2009, 421-422).

Practices

Practices reflect the project management, schedule, organization and roles, communication and governance supporting the design process. In addition, the practices also include e.g. the decision of the degree of formality in the design project meetings, in the communication and related to the reference documentation. Naturally, the practices depend on the project, the organization and its maturity level regarding accepting design's strategic value. Nevertheless, the practices support making the design process transparent and ensure the high-quality output. (Goodwin 2009, 12-13.)

Process of Goal-Directed Design

The process of goal-directed design includes the following stages: project planning, research (i.e. gathering information about customer needs and understanding the underlying design problem), modelling (i.e. analysing and making sense of the information and the data collected in the research phase), requirements definition (i.e. defining the drivers affecting the solution's functionality and design), framework definition (including e.g. the interaction, visual and industrial design framework for the solution), detailed design (i.e. how the solution looks and works down to the smallest detail) and implementation support. (Goodwin 2009, 9-12.)

This thesis focuses on the process of goal-directed design framework, i.e. on the stages, tools and methods for conducting design research, modelling the research insights, defining personas, scenarios, and design drivers and creating initial visualizations for the service concept. Naturally, the goal-directed design process also includes stages and tools for developing and iterating the final solutions, but due to the limited timeframe of the thesis, this is excluded from the thesis as discussed in Chapter 1. The different stages, tools and methods used in this thesis will be described in more detail in Chapter 4.

3.4 Futures Thinking

Organizations face unprecedented challenges to maintain economic survival and success today, regardless of their size or whether they are for-profit or non-profit. In order to succeed, a thorough understanding of the external influences is required enabling the organization to respond to the future changes. (Albright 2004, 39-40.)

According to Ojasalo et al. (2015, 196-197) futures thinking refers to a general approach for looking into possible futures, drawing on methods from several approaches for discovering, examining, evaluating and proposing probable, possible, alternative and preferable futures. Ojasalo et al. (2015) further state that futures thinking provides the opportunity to actively shape the direction of the future, and requires creativity and critical thinking for breaking the boundaries and reframing the problem through careful analysis of the information, insights and evidence related to the political, ecological, social, technological and economic changes in the business environment. Systems thinking is seen as a central element in futures thinking according to Ojasalo et al. (2015). In other words, each entity is considered as a system consisting of parts of a larger system. The different systems and components are connected to and interacting with other systems, sometimes creating surprising results and therefore making the futures thinking very challenging.

Regardless of these challenges, futures thinking offers novel methods and tools for helping companies and organizations to make sense of the complex situations, to identify weak signals and trends, identify unexpected opportunities and influence future developments. Futures thinking enables organizations both in the private and public sector to become more innovative. (Ojasalo et al. 2015, 196-197.)

According to Ojasalo et al. (2015, 198-199), futures thinking and design thinking have common grounds and synergy between them, as both of them are future oriented, sharing the participatory approach to creative problem solving for defining new opportunities and solutions. Design thinking aims at providing a thorough understanding of the customer's context and constraints by immersing into the lives of the user (Ojasalo et al. 2015). Futures thinking

aims at analysing holistically the business environment, including economic, technological, cultural, ecological and political aspects (Ojasalo et al. 2015).

Mapping the future changes in the business environment and in the customer behaviour is essential for service innovation. Foresight enables the creation of a holistic and systemic view based on information and insights gathered from different viewpoints. Scanning the environment is fundamental for identifying and collecting information about the driving forces and future changes, e.g. trends and expectations of various interest groups; and anticipating their future development. (Albright 2004, 39-40; Ojasalo et al. 2015, 200-201.)

There are vast amount of tools and methods available for bringing futures thinking oriented insight into the design process. Future trends and weak signals can be identified from different perspectives, e.g. at the macro level, sector level or a particular service level. Other tools include e.g. environmental scanning, content analysis, futures wheel, scenarios, and visioning. (Ojasalo et al. 2015, 200-203.)

Raymond (2010, 14) defines a *trend* as "the direction in which something tends to move and which has a consequential impact on the culture, society, or business sector through which it moves." A trend can be emotional, intellectual and psychological. A trend can also be defined as an "anomaly", inconsistency or deviation from the norm and become increasingly prominent over a period. Nevertheless, trends are an essential element of the emotional, physical and psychological landscape enabling organizations to anticipate the future changes, the principles driving and motivating the customers. (Raymond 2010, 14-15.)

Hiltunen (2013, 41-90) define the central concepts for anticipating the future as megatrends, trends, weak signals and wild cards, illustrated in Figure 7. Hiltunen (2013) explains that *megatrends* are large social, economic, political and technological changes, which do not appear and vanish rapidly, i.e. they are slow to form and long-lasting, such as aging population, population growth, climate change, technology development and urbanization. Megatrends describe the present moment affecting different areas of life and can slowly change over time. Megatrends can be divided into trends, which according to Hiltunen (2013, 52-53) "indicate the direction of change in the recent past or present, which may also continue in the future." Trends are certain, predictable direction and sequence of several events such as global warming.

Weak signals according to Hiltunen (2013, 63-79) are indications of emerging changes, which may or may not become meaningful in the future, i.e. they are signs too weak for their impacts to be defined. By analysing and combining weak signals new, emerging trends can be identified.

Hiltunen (2013, 89-90) describe *wild cards* as complex, disruptive and unexpected events with either positive or negative impact. They are difficult to predict and prepare for, such as the terrorist attack on the World Trade Center towers in New York on September 11th in 2001 and the massive earthquake in Japan with its related events in March 2011 (Hiltunen 2013).

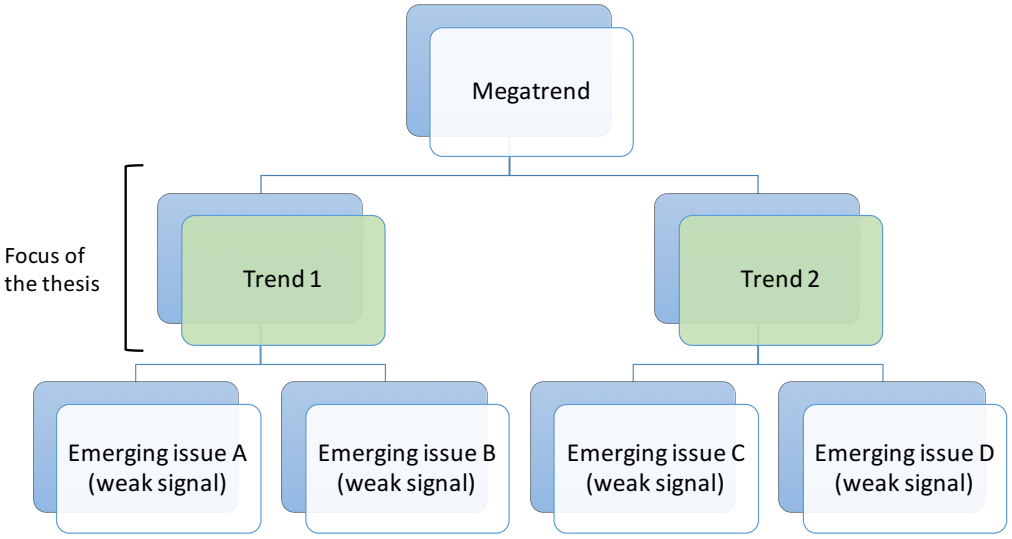

Figure 7: The relationships between megatrends, trends and weak signals. Adapted from Hiltunen (2013, 42).

The focus of this thesis is on identifying social and technology trends as they are expected to have a direct effect on the design of the digital wellbeing service. The key social and technology trends are presented in Chapter 4.

4 Designing the Family Wellbeing Service Concept

The empirical research of this thesis has been implemented through combining service design and goal-directed design processes. Figure 8 provides an overview of the whole design process, which consists of the Double Diamond model coupled with the different stages of the goal-directed design process. It is important to notice that even though the process is illustrated as a straightforward, step-by-step process, the design process is iterative as discussed in Chapter 3. The arrows in Figure 8 represent the iterative nature of the design process. Furthermore, all the methods and tools used in each stage of the thesis project are mapped in the illustration. The tools and methods will be described in detail both from the theoretical and the practical point of view in this Chapter. The timeline of the design process is shown in lower part of the illustration.

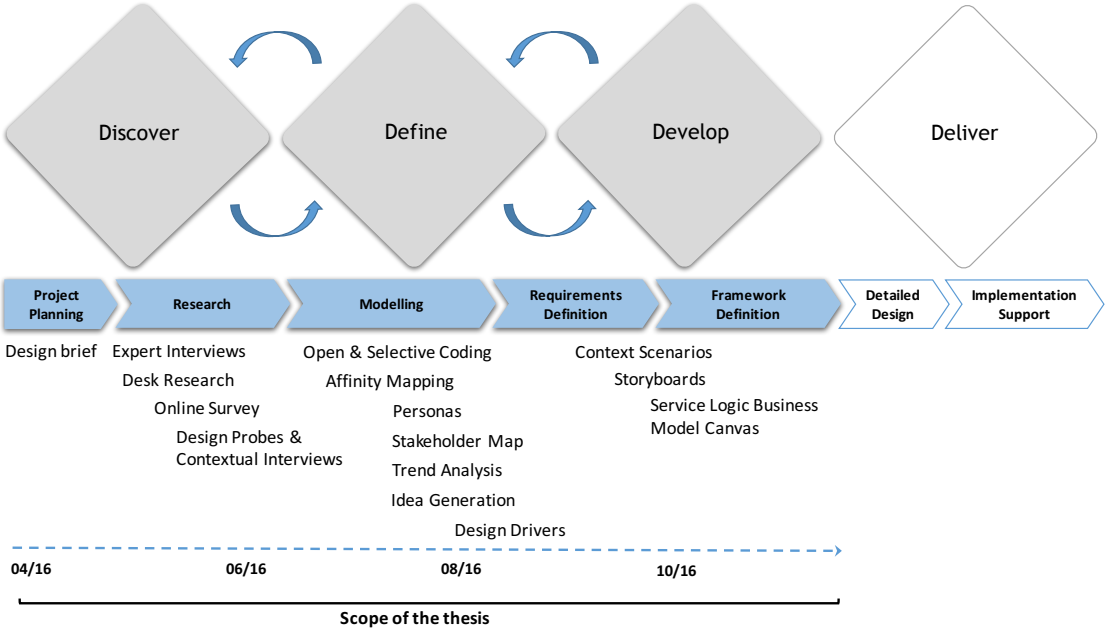

Figure 8: The design process used in this thesis project.

4.1 Discover

This section describes the first stage of the design process, i.e. the discover phase. The objective of this phase was to define the design problem, gather insights and empirical data to gain a deep understanding of the customer needs, behaviour, and the service context as well as the current situation and objectives from the City of Helsinki point of view. The insights and information were gathered using several tools and methods: expert interviews, desk research, online survey, design probes and contextual interviews. The primary focus in gathering deep customer understanding was in the use of qualitative and ethnographic methods e.g. design probes and contextual interviews. An online customer survey was also conducted aiming to collect both quantitative and qualitative information about the customer behaviour and needs related to wellbeing issues within the families.

According to Strauss and Corbin (2008, 10-12), the qualitative research refers to research methods that enable the identification of the customers lives, their experiences, behaviours, emotions, and feelings. Some of the data gathered may be quantified based on the background data about the persons studied, but the majority of the qualitative analysis is interpretative.

4.1.1 Design Brief: Perheentuki Service

The thesis project and the design process was initiated by the design brief given by the representatives of the City of Helsinki responsible for developing the city e-services and the Perheentuki service. Information about the background, purpose, and objectives for the Perheentuki service was provided in the design brief. Also, the initial scope, deliverables, and schedule of the thesis were discussed. It was also agreed that the researcher has the freedom to drive the design project and modify the research objectives based on the insights gathered in the discover phase. The high-level design process and the overall schedule was defined by the researcher based on the design brief and also agreed with the City of Helsinki representatives. The more detailed design process was developed along the research project enabling the iterative nature of service design.

Perheentuki program is part of the City of Helsinki strategy focusing on e.g. the wellbeing of families with children. The program is owned by the Social and Health Department, and its objectives are to develop and broaden the e-services for families with children in cooperation with different stakeholders within the City of Helsinki and to improve the Perheentuki website.

The initial objective of the Perheentuki website was to offer a centralized, digital multichannel service providing advice and support for families expecting a baby, i.e. to digitalize the information (e.g. forms and instructions) and guidance (e.g. material and articles regarding pregnancy and giving birth) usually provided in the maternity clinic appointment. Today the Perheentuki website provides timely information also for families with 0-6 years old children. The topics covered in the service include e.g. parenting, breastfeeding, sleeping problems of the infant, children getting sick, applying for daycare along with many other themes focusing on the social and healthcare issues of the families.

In the design brief, the representatives of the City of Helsinki elaborated that they would like to understand what kind of opportunities and benefits the weak authentication methods would provide for different stakeholders and especially how the customer experience could be improved through e.g. more personalized services.

4.1.2 Expert Interviews

According to Stickdorn and Schneider (2011, 162-163), contextual interviews are conducted with customers, staff and other relevant stakeholders in their own environment or context in which the service process is taking place. For this thesis, the contextual interview technique has been utilized for both the expert interviews as well as the customer interviews to be discussed in more detail in section 4.1.6.

The research phase of this thesis project was initiated by conducting the total of nine expert interviews using a semi-structured interview guide. An example of the interview guide is presented in Appendix 1. The interviews were carried out in the form of four individual interviews and one group interview in the facilities of the City of Helsinki. The roles and organizations of the interviewees are presented in Table 1.

Interview type	Role and responsibility area of the interviewee(s)	The organization represented by the interviewee(s)
Individual interview	Coordination and project management related to Perheentuki service development	Department of Social Services and Health Care, City of Helsinki
Individual interview	Development of the child and family welfare services in both physical and digital channels	Department of Social Services and Health Care, City of Helsinki
Individual interview	Development of the digital library services. Manager in the unit providing IT, network and ICT services.	Helsinki City Library
Individual interview	Coordination and project management of open data related activities.	Helsinki Region Infoshare, City of Helsinki
Group interview	Project management and development of e-governance, e-services and citizen participation in municipal organizations	The Six City Program (6Aika), City of Helsinki
	Project planning and development of open and smart city services and citizen participation. Development of family welfare services and customer support channels related to social and health services.	The Six City Program (6Aika), City of Helsinki
	Service design and experimentation-driven development of open and smart services and citizen participation.	The Six City Program (6Aika), City of Helsinki
	Development of the digital library services, information management, open and smart city services	The Six City Program (6Aika), City of Helsinki
	Project management and development of the city e-services	City Executive Office, City of Helsinki

Table 1: Roles and organizations of the expert interviewees.

The objective of the expert interviews was to get a better understanding and gather information about:

- the background, needs, motivations and challenges related to offering health and wellbeing services for families, from the service provider, the City of Helsinki point of view

- the service development and experimentation related to utilizing weak authentication methods in the City of Helsinki library environment for enabling more personalized services for customers
- the broader perspective on open participation, customership and user-oriented models used in the City of Helsinki to develop and implement multi-channel customer service processes and systems
- the availability, accessibility, and usability of the already published and to be published open data provided by the Helsinki region

The key insights from the expert interviews are described below.

Perheentuki and Customer-Centred Service Development in the City of Helsinki

As already discussed in the design brief, the initial objective of the Perheentuki website was to offer a digital multichannel service providing advice and support for families expecting and living with children by digitalizing the information and guidance materials typically given in the maternity or child clinic appointments. The digital material produced, e.g. videos, has enabled the City of Helsinki to provide a more consistent and uniform content for the customers regardless of the situation and also in broader scale than only through the Perheentuki – site. The nurses, for instance, have utilized the training videos in the face to face appointments with the families.

Digitalization of public services and citizen participation are some of the spearhead projects in the City of Helsinki and also in the Department of Social Services and Health Care. The premise for the Social Services and Health Care Department in the service digitalization has been that there are different segments with different needs that the city has to serve. The mass production of services is no longer sufficient. Furthermore, there are also families with variable skills and willingness to use digital channels, i.e. the city needs to provide both digital and physical service channels depending on the capabilities of the customer. Some families also have such challenging situations or language barriers (e.g. refugees) that resources need to be dedicated to enabling face to face support and interaction by the city. Thus, there must be a balance of both digital and physical services offered depending on the families' needs and capabilities.

According to the expert interviews, the majority of the people who contact the city customer support channels ask help for finding information. In other words, the customer support representatives spend a significant amount of their time looking for the right information together with the citizen and also helping them through the e-service and authentication processes over the phone, which is extremely inefficient. A more personalized service offering

with relevant information in a customer-friendly format would significantly reduce the number of customer support contacts enabling the city to allocate the resources more efficiently into those areas where the support brings most value (e.g. helping families in highly challenging situations).

The Service Development and Experimentation Utilizing Weak Authentication Methods

The Finnish legislation is very strict about how the patient's health records need to be managed especially in the digital channels and requires strong authentication to be used if there are any personal information distributed between the customer and the stakeholders. Thus, the scope and potential of developing social and healthcare services utilizing weak authentication methods can be quite narrow. Naturally, there are different kinds of more general level services that can be offered, enabling e.g. anonymous inquiries or general level consultation with health experts not revealing any personal data. Furthermore, there are a lot of room for designing innovative services from the broader wellbeing perspective, including e.g. hobbies, cultural activities and events as well as providing general instructions and advice related to nutrition, exercise, and mental wellbeing. These kinds of services can, however, provide much more personalized content and recommendations if the personal health data can be used, i.e. enabled by the strong authentication methods.

According to the expert interviews, there is a lot of demand from customers to interact anonymously with the city in various situations. For instance, an anonymous chat is essential for people who have difficulties in expressing themselves over the phone or in face to face meetings. Furthermore, the issue at hand may be very sensitive making it easier for the customer to initiate the dialogue anonymously. In other words, the anonymous service channels lower the barrier for people to seek help, which may be crucial related to e.g. mental health issues in the family. However, weak authentication does not necessarily provide complete anonymity and signing in to the service always takes time regardless of the level of authentication required. The easier the access is, the better from the anonymity perspective.

Figure 9 illustrates the different service levels currently offered to families based on the various authentication requirements. In other words, level 0 requires no authentication, level 1 enables e.g. anonymous services, levels 2 and 3 require strong authentication. Levels 0 and 1 are the ones that would most likely benefit from the weak authentication enabling a more personalized customer experience, but without the need for using the strong authentication process.

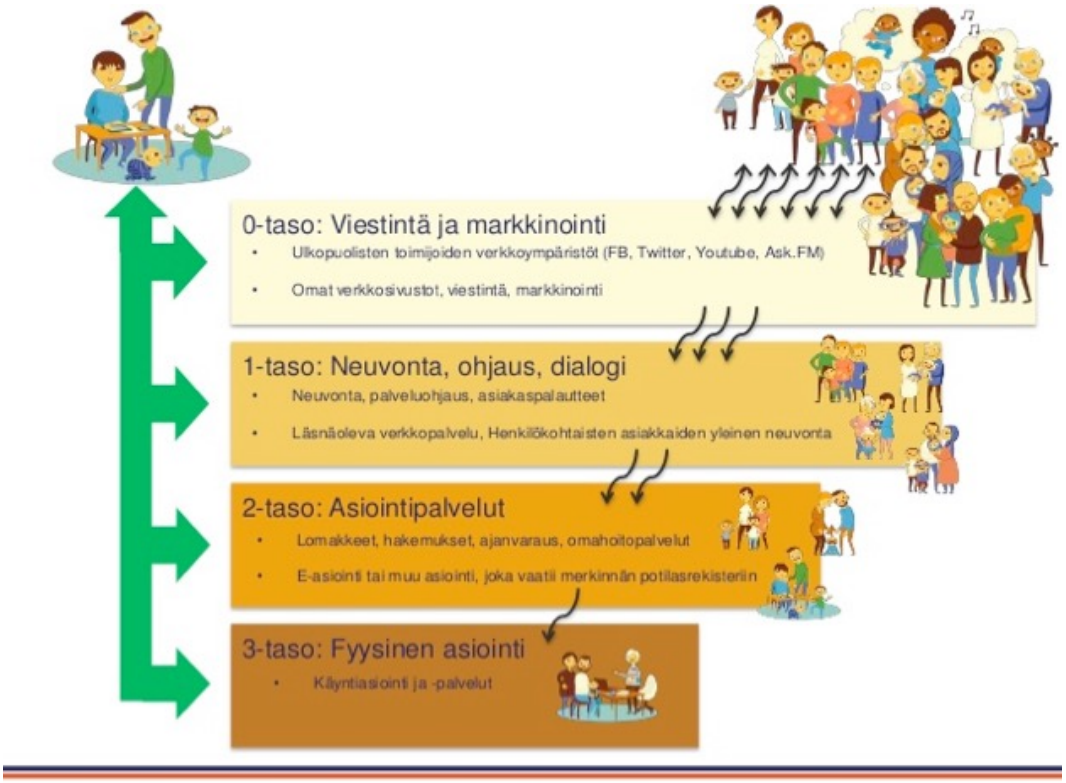

Figure 9: Current service levels offered to the families by the City of Helsinki (Perheentuki 2015).

So far, the Social Services and Health Care Department has not been able to utilize the customer profile data due to various reasons. All the City Departments have been developing their own services, which means that the user data has been collected in each department separately. The data is gathered from the service or City Department point of view and not from the customer perspective. The focus should now shift from authentication and transaction based thinking (GDL) to creating services around the customership (SDL). According to the expert interviews, this will change the construct significantly. Furthermore, it should be clarified why the customers are required to authenticate themselves to different services in the first place, i.e. what are the drivers from the city perspective. In other words, are there regulatory requirements, business reasons, trust issues that guide the utilization of various authentication methods. Or could the main driver be to provide value to the customer and to increase the customer experience?

Regardless of the authentication level, it should be required when it is necessary, taking the customer's context into consideration and also as late in the service process as possible. Currently, the challenge is that the customer is required to authenticate him/herself to the city e-services ”just in case” even before they can do anything else. In addition, the strong au-

thentication is used in places where it might not be necessary at all or where weak authentication would provide better value and experience for the customer. Overall, the unnecessary use of strong authentication reduces the citizen participation, enrolment and registering to different services. A valid question from the customer experience perspective is that how will the customer move between the various authentication levels within the service.

The current system does not support multi-profile usage, i.e. the customer may want to use the city services in different roles related to his/her family and also his/her profession. Therefore, the identity management should be handled centralized and enriching the various arrays of services, i.e. enabling a seamless customer experience by automating the backend processes and hiding the complexity of the different systems and departments offering the services.

The Helsinki City Library has already experimented and tested the use of weak authentication methods in a couple of cases and received encouraging and positive feedback from the customers, even though some users have quite a negative attitude towards using e.g. Facebook or Google credentials due to data privacy concerns. For this reason, there need to be different options offered to the citizens, i.e. in public services, customers cannot be forced to use a particular weak authentication method.

The utilization of weak authentication in the public services naturally enables the city to gather valuable customer data allowing the development of much more personalized services to the citizens, which has not been possible yet as discussed earlier in this section. To solve the challenges related to the customers' data privacy concerns, a tool need to be offered for the citizen to manage their personal and the entire family's data, enabling the customer to decide for which purpose and by which stakeholder their data is being analysed. It is also crucial that the customer data will be delivered in such a format that it is not possible for anyone to identify the user based on the information.

The city may also publish more general level data and statistics as open data, as is already being done through the Helsinki Region Infoshare service. There is already a massive amount of data available for service developers and other stakeholders to utilize. A lot of various small-scale solutions and services have been designed, but until today the broader and commercially lucrative services have not been developed. Nevertheless, this is likely to change through the development of more customer oriented public services and the collection and opening of finer and higher quality user data.

On the strategic level, the City of Helsinki is highly dedicated to customer-centred service development, through the utilization of open innovation, open participation, co-design as well

as open data and interfaces. There are several programs (e.g. Digital Helsinki and the Six Cities Program) initiated to drive the development of the customer experience and the digitalization of the public services provided by the City of Helsinki and also the whole metropolitan area. There is a massive transformation ahead not only changing what and how the services are offered to the customers. The internal operational processes, ways of working along with roles and job descriptions need to be updated as well to meet the future requirements of providing the services. Furthermore, open innovation and the city's role in facilitating e.g. the co-operation between different stakeholders will require new modes of operation and the definition of new business models fostering the future service ecosystem.

4.1.3 Desk Research

Gaining a thorough understanding of the development objective before planning the design process in detail is critical in ensuring that the scope of the design project is focusing on the right issues, i.e. solving the real problems causing the challenges instead of fixing the symptoms. For identifying the actual design problem, it is important to obtain a solid knowledge base about the business environment, key concepts, presumptions and the nature of the phenomenon. Even though the desk research is often time-consuming, it saves time in the later phases of the design process and usually ensures better end-results. The aim of the desk research is to gather and analyse information from existing data sources, e.g. books, research studies and articles, statistics or any other information sources available. (Ojasalo et al. 2010, 28-29; Martin & Hanington 2012, 154.)

In this thesis project, the information was gathered and analysed related to the earlier service development work and design projects that have been carried out by the City of Helsinki in developing the Perheentuki website. In addition, the objective was to get a better understanding of the customer needs and challenges that have been identified in these earlier design projects. User statistics of the Perheentuki website, requested by the researcher, were not available.

The Social and Health Department carried out a project in collaboration with Sitra in 2012. The goal was to define how families could get services easier via the web. There was a service designer hired to drive the design process. Insights about customer needs were gathered via web-based survey implemented by Fountain Park. According to the expert interviews, a lot of ideas and information were collected and one service prototype was implemented based on these insights.

The Perheentuki program was officially initiated in 2013 based on the results of the previous project, but also focusing on a fresh start with new thinking related to offering online services for families. A new survey was carried out with Questback to identify more insights

about the families' needs along with a web-based "idea factory". The idea factory was more sophisticated than a mere survey as it enabled the respondents to ideate and develop further the information given in the tool. There were more than 200 participants, from which the Social and Health Department was able to collect comprehensive material fuelling the design of the Perheentuki site.

Several workshops have also been arranged to develop the Perheentuki –website further in co-operation with partners, parents, Helsinki Cultural Office, Helsinki Sports Department, City Planning Department and representatives e.g. from daycare. The objective of these workshops was to define a holistic view of what services, benefits, forms and templates, instructions and guides are provided for families during pregnancy (e.g. maternity clinic visits, family training, doctor's check-ups and KELA allowances) and also during the different stages of the child's development before starting school (e.g. child clinic visits, health and dental check-ups). The workshops also enabled the parents to highlight areas and topics they found important.

In these earlier projects, several customer needs and challenges have already been identified. These include e.g. digitalizing the existing processes and information sharing, better opportunities for peer support, increased availability of services and options for contacting maternity and child clinics as well as interaction possibilities through the web with the health experts. Furthermore, the customers have indicated that they would like to have more easily consumable content, e.g. in the form of videos, digital guides and instructions, more effective search function for finding relevant information and better support services in unexpected situations (e.g. spouse of child falls seriously ill, child is born with a disability, the death of a family member).

Families with children in the elementary school find the current means for communication challenging as there is a separate system used for communicating with school and various channels for interacting with health and wellbeing related issues. Parents have also found it difficult to search information related to hobbies, cultural activities and youth services. The Helsinki Youth Department has already taken the first steps in responding to this need by launching a web-based service for finding hobbies (http://nk.hel.fi/harrastushaku/). Nevertheless, the challenges of the families relate to the fragmentation of services making it difficult to find relevant information, the limited offering and the cumbersome user experience related to the city e-services.

4.1.4 Online Survey

According to Lesley (2012, 45-54), the *survey research* forms an umbrella term under which different kinds of methods for collecting information reside, e.g. mail or email surveys, diaries, telephone surveys and online surveys. Lesley (2012, 45) states that the success of any survey format measured by a response rate depends on the striking topic, the sampling strategy, the wording and sequence of questions, the ease of participation, and the degree to which the survey participant trusts that the information provided by him/her will be reported anonymously.

For this thesis, a self-administered online survey format was chosen, i.e. enabling the respondents to answer the questions and complete the questionnaire unaided by the researcher via the internet. The benefit of this type of survey is that it allows the participants to fill in the survey questionnaire anytime and anywhere when most appropriate for them. In addition, an online survey is not limited by a predefined set of participants or e.g. geographical location.

The online questionnaire was defined by the researcher taking the structure, clarity, comprehensiveness, wording and sequence of the questions, as well as the length of the form carefully into consideration, which is crucial for designing effective questionnaires as described by e.g. Rea and Parker (2005, 30-72). Different kinds of question types were included to maximize the information gathered via the survey. For instance, both closed and completely open-ended questions were used. There were also closed-ended questions with open-ended response components enabling the respondent to elaborate his/her response. In addition, a single rating scale was used for multiple questions enabling the researcher to gather information about the wellbeing related topics of interest and their respective importance to the survey respondents. The online survey form and the questions used in the survey can be found in Appendix 2.

The aim of the online survey was to gather both quantitative and qualitative information and insights about the customers' needs, usage behaviour and challenges related to digital healthcare and social services provided to families with children. Furthermore, the objective of the online survey was to gain information about the customer needs and motivations regarding a personalized, digital wellness solution as well as their attitudes towards the utilization of weak authentication methods in this context.

The online survey was implemented in 10.-31.5.2016. Participants were recruited by promoting the survey in different channels, e.g. in the City of Helsinki news section, the Perheentuki Facebook page as well as on the Facebook pages of different daycare providers. There was total of 29 persons that participated in the survey. Key insights and statistics from the online

survey are summarized in Table 2 below. The basic demographic data is illustrated in Figures 10-13.

Topic	Key insights and statistics
The most interesting wellbeing related themes (over 80 % of the survey respondents found the topic extremely or somewhat interesting)	• The health, behaviour, and development of the children and teenagers • Parenting & raising children • Relationship with spouse • Children's hobbies • Daycare • Starting elementary school • Bullying at school • Teenagers and substance (e.g. alcohol, drug) abuse • The internet / social media usage of children • Networks and support channels
Other wellbeing related topics listed by the respondents through open text field	• Breastfeeding options • Pregnancy (e.g. symptoms, diet, medication) • Low-barrier mental health support • Finding a babysitter • Child's playing skills • Child-friendly services overall • Different hobby possibilities, summer camps and activities located near home (e.g. exercise, camping) for children, parents and family as a whole • Networking with other families • Finding appropriate peer support channel • Safety products for children (e.g. safety seat for car) • Living & housing • Family economy & financial issues • The balance between work/studies and family • Food, recipes, and nutritional facts and diet recommendations
Current channels for finding health and wellbeing related information	• Websites targeted for families with children (e.g. MLL) - 51 % • Online discussion forums (e.g. vauva.info) 38 % • Social media 69 % • Maternity and family clinics (neuvolat) - 62 % • Books and guides - 69 % • Other channels - 41 % e.g.: Google search, family & friends, school nurse, hospital, magazines, scientific publications, city services, Kela
Reasons for utilizing the current channels	• Appropriate for the issue and situation • Reliability and timeliness of information • Easy, fast and 24/7 access to finding information and answers • User-friendly, handy • Possibility to get thorough answers for questions and concerns, which are not opinion or experience based • Habitual reasons (e.g. reading books)
Challenges related to finding information	• Accessibility of the service provider due to limited service hours • Assessing the reliability and source of the information • Finding appropriate and relevant information for personal situation

	• The enormous amount and fragmentation of information make the searching extremely time-consuming and exhausting • Lack of information • Difficulties in finding information due to poor, fragmented website structure and design in the city services
Willingness to register and utilize weak authentication methods in digital wellbeing service	• Yes 62,1 % • No 20,7 % • Not sure 17,2 %
Attitudes and motivations related to registration and utilization of weak authentication methods	• Registration has to provide clear value to the customer in the form of e.g. personalized content and answers to timely concerns, up to date information, service customization and adaptability • There needs to be the possibility to try out the service before registration enabling the customer to evaluate the expected value to him/herself • Access to the service and information should also be available without registration • Most customers find Facebook and Google credentials convenient and easy to use and are not concerned about data privacy issues. • Creating new credentials for registration purpose is also found cumbersome, the management of several different passwords is challenging already in the current situation. • Data privacy concerns make some customers not willing to register at all; privacy concerns arise especially related to using Facebook credentials • Registration causes concerns related to spam email

Table 2: Key insights and statistics from the online survey.

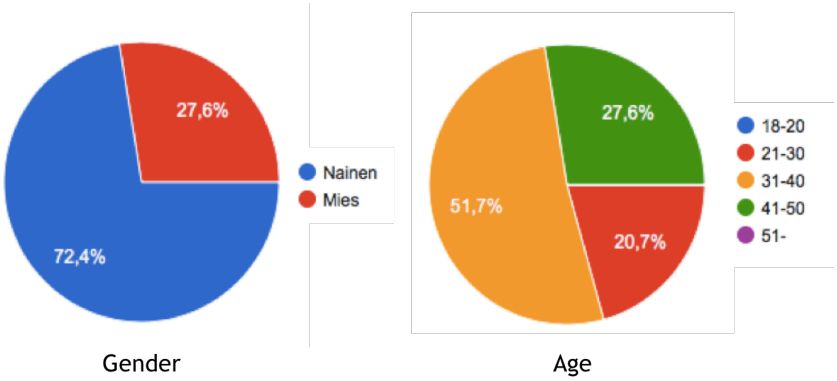

Figure 10: The gender and age split of the online survey respondents.

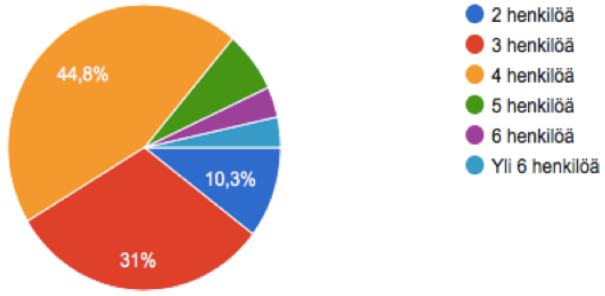

Figure 11: The size of the online survey respondents' family.

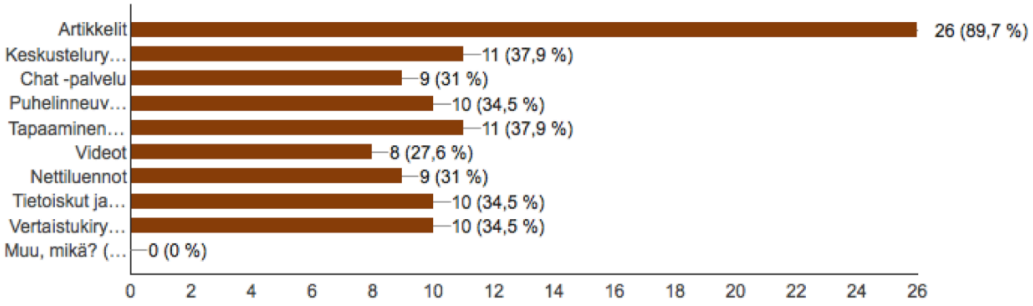

Figure 12: The preferred format or method for finding information.

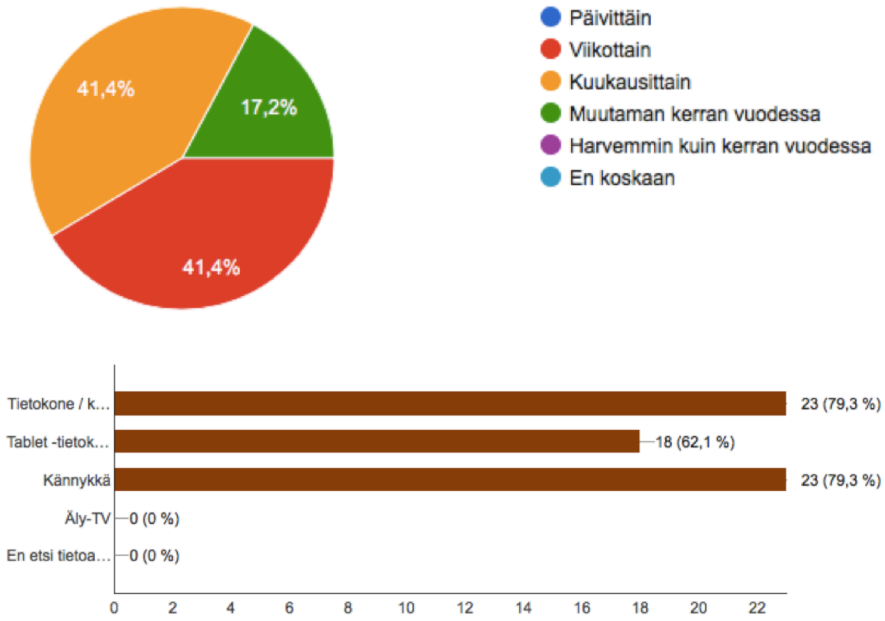

Figure 13: The frequency of wellbeing information search and the preferred devices used.

4.1.5 Design Probes: Diary and Camera Study

According to Holmlid et al. (2015, 552) the cultural probes method was originally developed to provide inspiration and information to the designers about the contextual issues, opinions, and lifestyles of the people involved. Mattelmäki (2008, 39) defines design probes as ”an approach of user-centred design for understanding human phenomena and exploring design opportunities.” According to Mattelmäki (2008, 39-42), the design probes emphasize the customer’s active role in recording the information about their daily lives including social, aesthetic, needs, feelings, values, attitudes and cultural environment. According to Holmlid et al. (2015, 552) probes are descriptive and predictive, i.e. they aim to capture the current experiences and trigger people to consider possible expectations and solutions. Probes are based on user participation via self-documentation from the customer’s personal context and point of view (Mattelmäki 2008, 40; Holmlid et al. 2015, 552; Ojasalo et al. 2015, 200). Probes are also exploratory in nature, as they aim to define new opportunities instead of solving problems already known. Mattelmäki (2008, 40) elaborates that probes support both the designer and the customer to experiment, interpret and explicate the users’ experiences, also enabling surprising or unexpected results.

Mattelmäki (2008, 58-63) identifies four reasons for utilizing design probes. In addition to *inspiration* enabling the exploratory perspective and the identification of new views and opportunities, probes can be used for gathering *information* and profound insights about the customers for framing the design challenge. Furthermore, probes foster customer *participation* by engaging the users in the design process and exploration. Design probes also increase collaborative learning, *dialogue* and empathy between the customer and the designers.

Mattelmäki (2008, 62) emphasizes however that design probes should be used together with other methods, i.e. they cannot be used alone as the basis of decision-making in e.g. R&D. She states that ”the authenticity, visuality, and openness of the probe material are both a strength and a weakness of the approach.” Probes are subjective in nature, and it can be challenging to interpret and distinguish the relevant insights for the design project from the material.

There are many types of design probes available based on self-documentation and interactive devices for prototyping experiences (Mattelmäki 2008, 40). In this thesis, the design probes utilized were based on self-documentation using a diary and camera study. Self-documentation enables the collection of data during a prolonged period and from several situations providing more credible and reliable understanding of the customer compared to e.g. observing the customer in one situation (Mattelmäki 2008, 40; Ojasalo et al. 2015, 200). Self-documentation also enables the recording of experiences as they occur reducing the risk of the

customer forgetting the situations and their experiences. It also minimizes the possible influence an observer may cause in the situation as the presence of the observer may affect the behaviour of the customer (Mattelmäki 2008, 40).

The design probes used in this thesis were conducted through a probes kit, which according to Mattelmäki (2008, 41) is often utilized in self-documentation assignments. The probes kit usually includes physical objects and tasks and can contain e.g. envelopes, folders, notebooks, cards and stickers designed for the particular research (Mattelmäki 2008).

Several weeks was used by the researcher to develop the probes research and the kit. Inspiration and insights for this purpose were taken from e.g. academic and business literature as well as the results of the online survey conducted in the early phase of the discover stage. Most emphasis in the design probes planning was put in the definition of the daily tasks for the diary and to make the kit visually appealing. The probes kit was piloted with one person representing the target group before delivering the final kit to the participants, enabling the researcher to collect feedback about the daily tasks and questions as well as an evaluation of the kit and the length of the probes study. The importance of testing the probes kit before the actual implementation of the research is also emphasized by Mattelmäki (2008, 84).

The objective of the design probes was to gain a deep understanding about the daily lives of the families related to their wellbeing, challenges, motivations, joys, information searching behaviour as well as their dreams. The diary was designed so that it enabled the entire family to participate and fill in the tasks and report their experiences and thoughts together. The length of the design probes study was one week not to make the participation for the families too time-consuming.

The participants for the design probes were recruited via the online survey as well as using the network of the researcher. Total of 7 families participated in the design probes study. The adequate amount of participants is 5-10 according to Mattelmäki (2008, 69). Mattelmäki (2008, 69) emphasizes that in addition to the group size, the characteristics of the participants are important as well.

The criteria for selecting the participants for the design probes in this thesis were families with 0-12 years old children, parents expecting a baby, gender of the parent (both female and male) and place of residence as the scope of this thesis is within families living in the metropolitan area.

The probes kit used for this thesis included the diary with information and instructions for using the kit, a set of colour marker pens to inspire the families to visualize and draw together,

a magnet to be put onto e.g. a refrigerator door acting as a cue and reminder for the participants to do the daily assignments, and a prepaid return envelope for the diary material. All these items were packaged into a transparent folder and delivered to the families via mail. Figure 14 illustrates the probe kit. The diary with the instructions and the daily tasks is included in Appendix 3.

The probes kit also included a photographing task aiming to get the families to capture images with their smartphones about e.g. places, situations, web pages, services related to their wellbeing. According to Mattelmäki (2008, 76-80), photography assignments seek meaningful prospects in the customer's life. Another purpose is to give the families something to think about related to their experiences of ideas for the future and to support and inspire the telling of personal stories. The families were encouraged not to be too critical about taking the images and simply capture the shot which felt relevant for them. The images were asked to be sent to the researcher with the tool most appropriate for the family, e.g. email or WhatsApp.

Figure 14: The design probes kit used in the thesis project.

The diary included open questions for each day and also a section where the family could indicate their emotional state each day. Open questions were used as they enable the self-expression of the participants and foster storytelling as well as expressing the participants' opinions (Mattelmäki 2008, 81). The diary was designed to inspire visualization and drawing.

Based on the feedback from the families, especially children were eager to help with the visualization tasks. A few example illustrations are presented in Figures 15-17 below.

Figure 15: Examples of children's visualizations in the design probes diary.

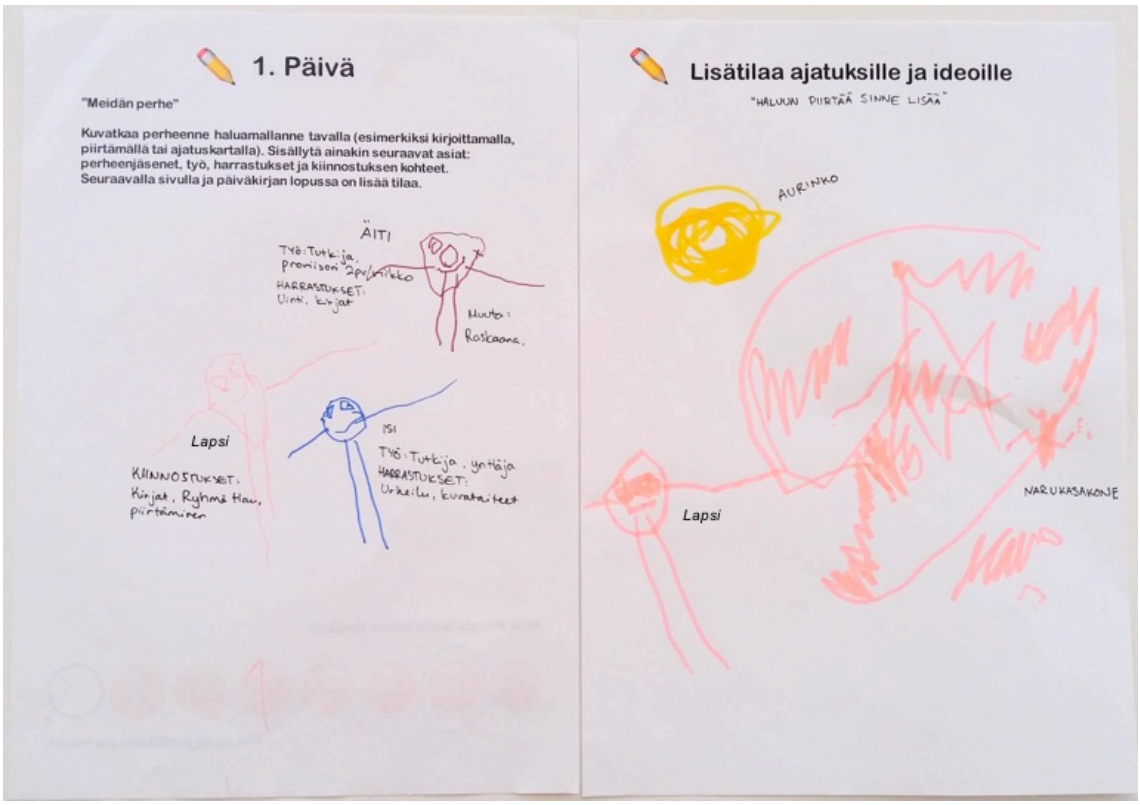

Figure 16: Another illustration of the family filling in the diary together.

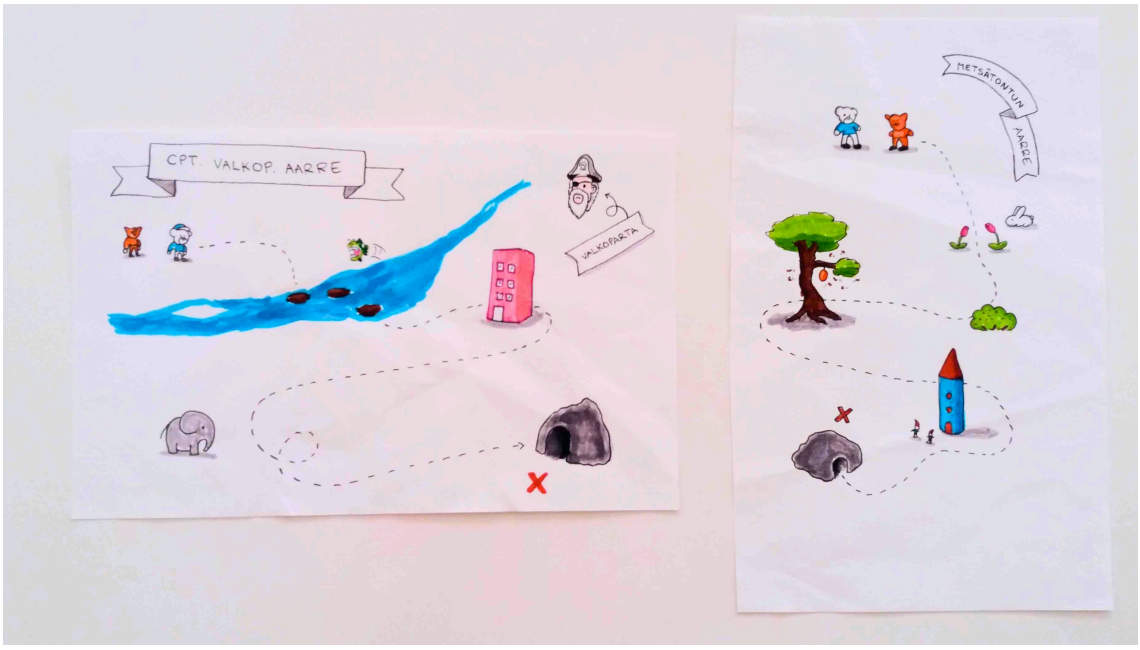

Figure 17: Treasure map visualized by one father based on the input from his child.

4.1.6 Contextual Interviews

Design probes can be used as a source of insight as such, but it may also be useful to extend, supplement and revise the information gathered in the probes via interviews (Mattelmäki 2008, 86; Holmlid et al. 2015, 552). There are many types of interviews methods and styles available, but in this design project, a combination of an individual and contextual interview was chosen.

Contextual interviews, as discussed in section 4.1.2, are conducted with customers in their own environment or context in which the service process is taking place. According to Stickdorn and Schneider (2011), the context related environment might help to provoke more in-depth insights and helping the interviewee to remember specific details that are easily lost e.g. in a traditional focus group discussion. Stickdorn and Schneider (2011) argue that most people are also more comfortable providing their insights and thoughts about their behaviour and needs when the interview is taking place in a familiar setting.

Thus, after the design probes diary materials and photographs were all returned, the researcher organized individual interviews with one of the family member, who in all cases was the one responsible for completing and filling in the diary tasks together with his/her family. Total of 7 interviews took place representing all the families who participated in the design probes study. The interviews lasted approximately for one hour.

The researcher read the probes material carefully through before the interview and prepared a dedicated, semi-structured interview guide for each interview. The interviews enabled the further elaboration and deepening of the insights collected from each family. Naturally, all interview guides followed a similar structure on a high-level. An example of an interview guide used is presented in Appendix 4.

The objective of the interviews was to gain a deeper understanding of the daily lives, needs, motivations and challenges of the families regarding their wellbeing than would have been possible with only using the design probes material. Almost all interviewees mentioned something they forgot to document in their diaries and also provided views they came to think of after returning the probes material back to the researcher. No screening of the interviewees was done since the families were already chosen to participate in the probes based on the criteria described in the previous section.

The interview always began with an introduction of the thesis project, which is also suggested by Mattelmäki (2008, 87). In addition, feedback was asked from the probes participants about their experiences in participating in the study and the probes kit. These also worked as warming up questions, making the interviewee to relax and get ready for the interview.

The confidentiality of the information to be shared by the interviewee was already agreed in the process of recruiting the probes participants and making the appointments, so no formal participant releases or non-disclosure agreements were signed in the interview sessions. The researcher naturally reminded of this issue when providing the introduction to the thesis project and its objectives.

In all of the interviews, the technique of using open-ended questions was used. In addition, storytelling was utilized whenever appropriate, especially in covering topics related to health issues within the family. Silence after the questions was also used enabling the interviewee to think carefully about the answer, which is an effective technique discussed e.g. by Portigal (2013, 84-86) in revealing e.g. unexpected insights. The design probes material, i.e. the diary and the photographs were available in each interview, enabling the researcher and the interviewee to go back to the material if needed, acting as a reminder or a cue to fuel the discussion.

The interviews were more conversational rather than a formal interview. The aim of this approach was to make the interviewees relax. Revealing and discussing the health and wellbeing of the families was found personal and including difficult topics and situations. The conversational approach also made it easier to build the rapport, which is a crucial prerequisite for a successful interview according to Portigal (2013, 20).

Taking notes and voice recording was used for documenting the discussion. The researcher transcribed each interview from the voice recording enabling the collection of all insights from each participant. The researcher found it extremely useful to interview the design probes participants allowing them to further elaborate their thinking, views, needs, motivations, and challenges. As Mattelmäki (2008, 86) describe, the probing interview provides an opportunity to interpret the material in more detail instead of just documenting facts. Furthermore, the interviews in combination with the design probes, enable the researcher to outline the individual and family's perspectives, revealing their personality, preferences, wishes, goals and habits (Mattelmäki 2008, 86-87).

4.2 Define

A significant amount of data was collected during the discover phase, i.e. the online survey material, design probes diary entries and photographs, customer and expert interview recordings and transcriptions. This section describes the process and methods used for the define stage of the design process, i.e. modelling, understanding, making sense and translating the data collected into insights and further into personas and design drivers. In the define stage, a stakeholder map was also set out, content analysis for identifying the key trends and idea generation were carried out. The stakeholder map, key trends, and the ideas generated supported and contributed to the persona development and the design driver definition in an iterative process.

Goodwin (2009, 207-208) discusses the importance of the analysis of especially qualitative data in the design project as it is the qualitative information that provides answers to questions like why, how and what. Goodwin (2009) also emphasizes that intuition can be useful in analysing the data. Furthermore, the data collected should be analysed at varying levels of granularity, i.e. it is important to know the individual customers as well as the whole data set to make sense and understand what the results truly mean (Goodwin 2009, 207-208). Thus, single-case and cross-case analysis are used. The former focuses on understanding one individual (or family) and the latter involves grouping and comparing the individual cases (all families) to identify e.g. behaviour patterns (Goodwin 2009).

4.2.1 Open and Selective Coding

According to Goodwin (2009, 209), coding refers to categorizing the comments, statements, and observations made during the customer research phase. Goodwin (2009) states that the coding process is both deductive and inductive as some of the information categories and insights are expected based on existing knowledge and some may suggest other categories. Kelle (1997, cited in Gläser & Laurel 2013) define coding as a technique that has been widely

used for a very long time to structure information and is today probably the most popular technique of data analysis. Coding may be performed in various ways and several cycles with iterations of upward and downward coding in terms of grounded theory, as discussed by Strauss and Corbin (2008) and Jansen (2010). Grounded theory is an approach for qualitative research aiming to find, analyse, conceptualize and integrate the data for the researcher to define the theory grounded in the data (Straus & Corbin 2008). The fundamental principle and objective of coding are to create a consistent, well-defined and ordered scheme of objects, dimensions and categories from a vast amount of data, which should be grounded to the objectives of the research (Strauss & Corbin 2008; Jansen 2010).

The process of analysing qualitative data can be carried out and structured along the lines of e.g. open and selective coding (Strauss & Corbin 2008; Jansen 2010). Open coding is the first stage of the analysis process enabling the initial discovery of categories and properties, i.e. it is an interpretive process breaking the data analytically. Open coding allows the researcher to develop categories for the information and to compare the incidents with other incidents in terms of similarity and differences, giving conceptual labels to these incidents (Strauss & Corbin 2008; Jansen 2010). Selective coding refers to the process of selecting the categories that are intended to generate the story, i.e. the descriptive nature of the central phenomenon and issues related to the research study (Gläser & Laurel 2013; Cho & Lee 2014, 8).

Analysing the qualitative data is an interplay between the researchers and the data. It consists of both science and creativity. According to Corbin and Straus (2008, 13), the role of science is to maintain a certain degree of accuracy and to ground the analysis in the data. Creativity, on the other hand, enables the researchers to name the information categories, ask stimulating questions, make comparisons, and identify innovative, integrated and realistic insights and schemes from the vast amount of unorganized raw data.

The coding was carried out by the researcher first by going through the design probes material, reading the interview transcriptions one family at a time and visually marking the relevant comments, statements, and behaviour. Intuition was also used for selecting the relevant data in the coding process. Figure 18 illustrates this stage of the process.

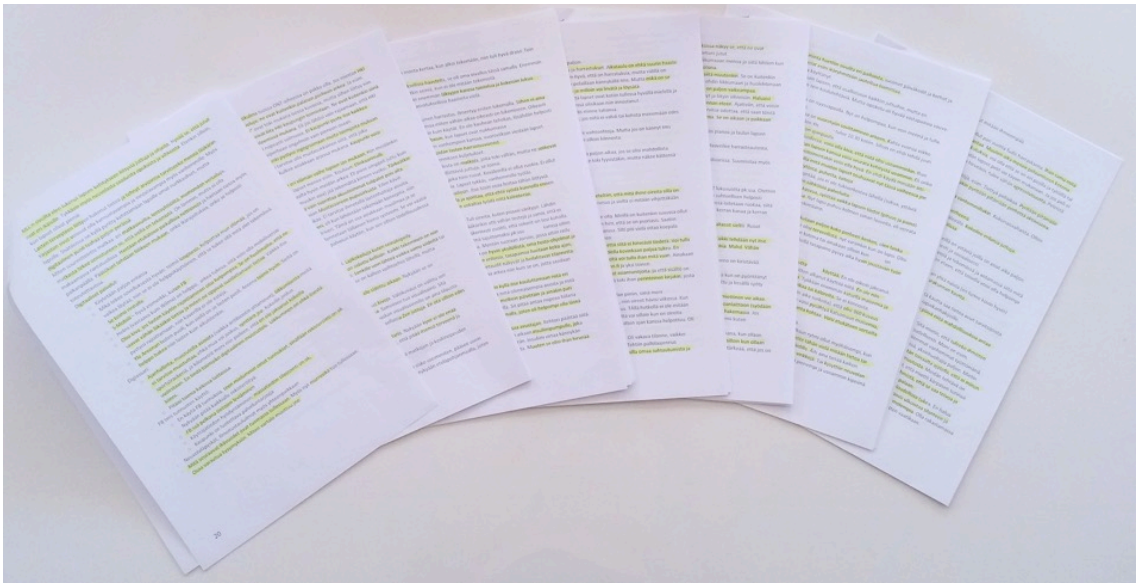

Figure 18: Coding the interview transcriptions from the design probes study.

All the codes, i.e. relevant comments, statements, and behaviour were then written on Post-it notes and sorted into visible groups per family enabling an iterative approach (single-case analysis). The grouping was done using affinity mapping, to be presented in more detail in the next section. Figure 19 provides an example of the visualization and grouping the insights gathered in the design probes and the interviews per each family.

Figure 19: Examples of the display and the grouping done based on the design probes and interview material per each participating family.

4.2.2 Affinity Mapping

Affinity mapping technique is a simple tool helping to discover embedded patterns from research data by sorting, organizing and clustering the information into relationships, entities, and insights (Goodwin 2009, 215-217; Gray et al. 2010, 56). Goodwin (2009, 216-217) explains that affinity mapping enables the researcher to divide each identified clusters into sub-clusters or aggregate them into larger entities representing an overall insight or idea. Goodwin (2009) also emphasizes that the creation of the diagram itself is not the point of this step, rather the insights are.

Thus, after the visualization and grouping of insights per family was completed, an aggregated view was created from all customer information gathered during the research phase, i.e. from the online survey, the design probes and the interviews. All the insights were mapped into an affinity diagram enabling a holistic view of the data collected in the discover phase (cross-case analysis). Figure 20 illustrates the affinity mapping process.

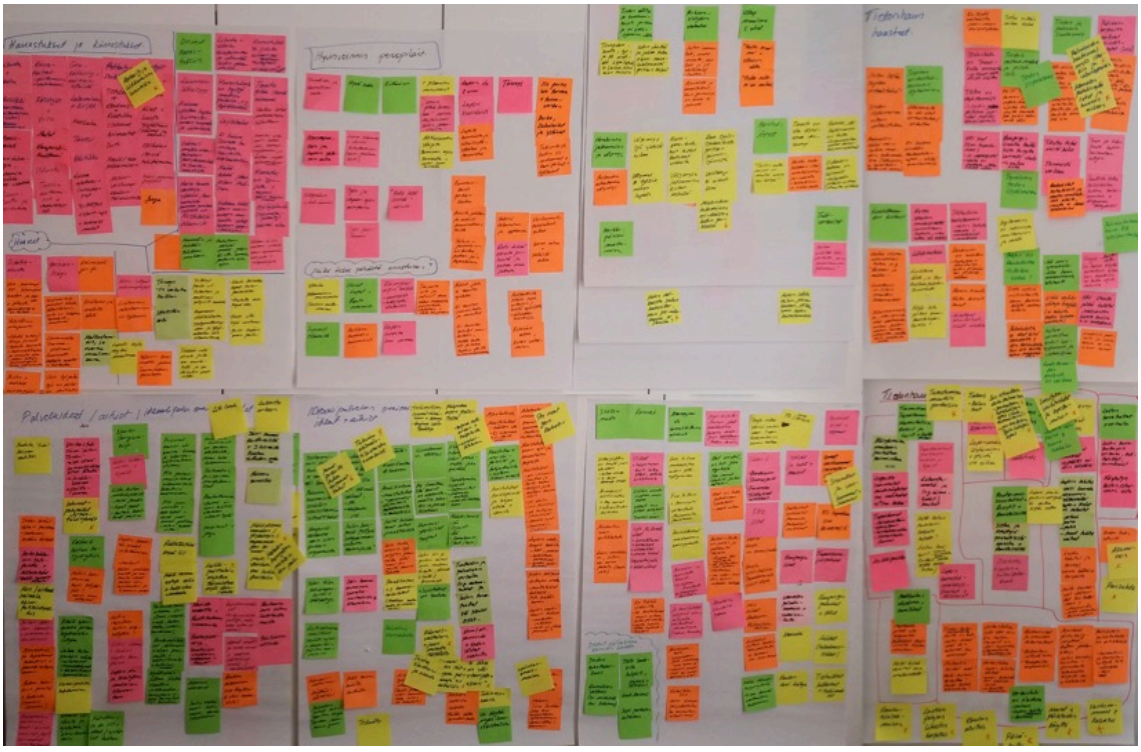

Figure 20: The affinity mapping process aggregating all the insights from the discover phase.

The majority of the customer information gathered in the research phase was collected in the design probes study and the supplementing interviews. A vast amount of data was gained regarding the families' hobbies and interests, challenges and worries, dreams, motivations and foundations for wellbeing. The frustrations, preferred channels, and content format, as well as motivations and drivers for finding wellbeing related information, were also identified.

Furthermore, the families' attitudes towards signing up and registering for digital services, using different authentication methods along with data privacy issues and concerns were defined.

Tables 3-5 provide an aggregated view of all the key customer insights collected. These insights formed the basis for persona development and the definition of the design drivers.

Area of wellbeing	Key insights
Hobbies & interests	• Physical and mental wellbeing: sports, outdoor activities, camping, geocaching, gardening, yoga, meditation • Creativity and personal development: arts, photography, DIY, studying, music (listening, playing an instrument, singing) • Culture, concerts, and events • Social activity: helping others, voluntary work, politics • Innovation and future technology: coding, robotics, biotechnology, genetic engineering • Entertainment: Movies, animations, games
Motivation and drivers for hobbies and interests	• To keep oneself / family active a healthy • To try out new and different kinds of hobbies, to find hobbies for children • To act as an example to children and teach the importance of exercise • To spend time alone and together with family • To keep in touch with old friends • To do something meaningful • To balance hectic work life and feel good
Dreams	• To live a normal, balanced life • To stay healthy • To be a good and mindful parent, to raise children according to own values • To live in a communal neighbourhood and close to nature • To experience things together, to travel and show children new places, to expand thinking
Foundations for wellbeing	• Self-actualization: creative hobbies, experiences in everyday life (e.g. treasure hunt or picnic with children) • Esteem: Work – life balance, flexibility of work • Love and belonging: friends, family, grandparents, spending time together with the family, with spouse and also alone, sharing daily experiences and thoughts, discussing and communicating with family • Safety: broad support network, happiness, and health of entire family, staying active and minimizing children's playing / media time • Physiological: healthy food, adequate sleep (both children and parents), no stress, no need to plan and think about the routine things currently eating a large part from the family's possibilities to spend time together.
Challenges and worries	Health issues in the family: • Serious illness of child and/or spouse, living in uncertainty • Difficulties in finding information related to the illness and treatment, low quality or contradictory treatment recommendations cause insecurity and frustration

	• Lack of support from official healthcare providers in various situations: e.g. parents have been left alone and responsible to train daycare or school personnel to treat their child; parents would have needed support in how to tell children about the parent's illness • Lack of appropriate peer support, especially from the viewpoint of how to support the family member who has fallen ill Children's development and behaviour: • How to understand the baby's needs? • Is the child's development/behaviour normal? • How to activate children to exercise and play outdoor more? • Aggressiveness caused by mobile games Mental wellbeing and fatigue: • Feeling guilty for neglecting family due to work • Fatigue and time pressure is reflected in entire family, parents are not mentally present with their children, there is no energy to spend time together with the family Communication and sharing information within the family and the different stakeholders (e.g. healthcare providers, daycare, school) Time management of the whole family • Lack of time for personal hobbies, family activities and other meaningful matters • Difficulties in managing the family schedule and calendar related to e.g. health appointments in the public sector and hobbies • Making the right choices regarding time usage (e.g. cooking healthy food vs. taking children to play in the park; voluntary work vs. spending time with own family; work – life balance) Healthy diet and nutrition: • Building a suitable diet due to e.g. health issues • Finding new recipes, planning and preparation of e.g. weekly menus for the family is difficult and time-consuming • Contradictory nutritional information and recommendations from various sources • Grocery shopping takes a lot of time

Table 3: Key insights related to the wellbeing of families.

Topic	Key insights
Challenges related to finding wellbeing related information	• The enormous amount, fragmentation, and inconsistency of information (not finding a proper answer particularly to the personal question or situation) • Difficulties in obtaining reliable and deep-level information, and in evaluating the credibility of the source • The official (authority style), impersonal, distant and even unpleasantly suggestive and difficult to understand style of information especially in the public sector services • The availability of service due to challenging service hours (e.g. phone consultation) and service not working properly (e.g. appointment booking system for child health clinic (neuvola) fails to function in the city e-services) • The city e-services are complicated and cumbersome to use. (”Not even giving feedback to the city about the e-services is possible without signing in with bank credentials.”) • The absence of interactivity and the possibility to ask questions in digital channels
Current channels for information search and preferred format of content	<u>Channels and services used for finding information:</u> • Web: Google, Tohtori.fi, Duodecim, Terveysportti, City web pages, MLL • Face to face / phone: Maternity and child health clinics, school nurses • Books, guides, and magazines • Scientific research studies and articles • Friends and family <u>Drivers and attitudes for using different channels and forms of content</u>: • Timeliness, accessibility, reliability, and convenience of the information • Level of urgency (e.g. in acute situations a phone discussion is found the most appropriate channel) • Face to face meeting with e.g. a nurse enables a proper discussion in complex issues (e.g. treatment recommendations) • Chat is considered somewhat irritating, intrusive and slow, although it is found useful in e.g. initiating an anonym discussion about personal and intimate issues. • Articles and videos are both found useful, although some people find videos time consuming and controlling the customer’s time instead of the other way around. The customer needs to watch the entire video before being able to evaluate its usefulness. Articles with keywords enable the user to skim the text through and evaluate the relevance of the information. • Discussion forums are found causing more distress and anxiety than providing help for the customer. They also mostly provide opinion based information. • Searching for information and interacting in different channels in anonymous format is found useful in extremely personal and intimate situations, e.g. mental issues, relationship problems, strange symptoms. The possibility to find information anonymously lowers the barrier to seeking help.

Table 4: Key insights related to searching wellbeing related information.

Topic	Key Insights
Attitudes related to registration, authentication methods, and data privacy	• Registration: the majority of the families are willing to register to digital services depending on the content and assuming it provides value for them in the form of personalized information. It also needs to be clear before the registration what benefits it will provide, i.e. the customers want to validate the value before registering. The service should also be available without registration, i.e. forcing the customer to register is considered a ”show stopper”. • Weak authentication methods and concerns about data privacy: o Most customers find public sector as a reliable service provider and are willing to use e.g. Facebook or Google credentials enabling easy and simple registration flow. There is no need to remember yet another new password and creating entirely new credentials is considered cumbersome. These customers are aware of the data privacy risks but are somewhat negligent regarding the risk. Facebook is seen as more personal than Google credentials, causing some customers to prefer the use of Google credentials. o Some customers want to create entirely new credentials or use their email for registration. These customers are concerned about data privacy and the misuse of information. Another reason for using email or creating new credentials is that e.g. Facebook is used for the professional purpose as well, i.e. the customer does not want to take the risk of private matters appearing in the news feed visible to entire FB network. • Data usage for statistical & service development purposes: o Using data for statistical purposes and the development of new and more personalized services by the public sector and also third parties – combined with open data - is found necessary, even essential for creating improved customer experiences in the future. o Some customers want to manage their own data (MyData) and control who has access to their data.
Elements of ideal digital wellbeing solution	• Holistic, systemic view and taking the family ”life-cycle” into consideration • Proactive, anticipates the next phase in the family’s life (e.g. starting school) • Convenient, easy to use with simple and intuitive user-interface (UI) • Versatile, customizable, interactive • Enables actions and sharing of information within the family and the different stakeholders • Enables social interaction and networking with other families (”Family Tinder”) • Customer oriented, informal style • Human, understanding and warm, almost like one member of the family, familiar with the family’s situation and life, takes personal and common needs into consideration • Personalized experience with targeted and context related information, recommendations, advice and support • Enables the saving of favourite content into own profile • Can be used with all devices, anytime and anywhere (online and offline) • Optional registration and authentication

Table 5: Key insights related to registration, weak authentication methods and ideal digital wellbeing service.

4.2.3 Personas

Personas is a tool based on a fictional profile or character, which is often created out of the insights gathered in the research phase of the service design process, e.g. during observation, shadowing, design probes and interviews (Goodwin 2009; Stickdorn & Schneider 2011; Tschimmel 2012; Cooper et al. 2014; Ojasalo et al. 2015, 201; Trischler & Scott 2016, 724). Personas are very useful in identifying relevant patterns in the customer's behaviour, motivations, goals, desires and needs (Goodwin 2009, 229-235; Ojasalo et al. 2015, 201).

Stickdorn and Schneider (2011, 178) describe that personas represent the interests of a particular group with which the design team can engage. Goodwin (2009, 234-235) also finds personas effective, because humans are accustomed to using models, and personas encourage the design team to relate to the customers in uniquely human ways. Goodwin (2009) further elaborates that high-quality data, thorough analysis and compelling, human presentation are essential to make the personas work.

According to Stickdorn and Schneider (2011, 178), personas provide different perspectives on the service shifting the focus from demographic statistics into actual wants and needs of real people. Thus, even though the personas are usually fictional characters, their motivations, goals and reactions are real, i.e. personas are real-world perceptions, and a collation of feedback and insights collected in the research phase of the design project (Stickdorn & Schneider 2011, 178).

There are several techniques, e.g. visual representations or very detailed profiles, to bring the persona characters into life (Stickdorn & Schneider 2011, 178). In the thesis project, the persona development was initiated by defining thirty (30) different variables and mapping all the persons that participated in the design probes study and the interviews, in each of the thirty continuums, illustrated in Figure 21. Next, the similar persons, appearing most often together, were identified. Two distinctive groups were identified to be used as the basis of the persona development illustrated in Figures 22 and 23.

Figure 21: Illustration of the first stage of the persona development.

Johanna Grönroos

Age: 41
Work: Marketing Manager
Family: Married, 6 and 10 year old children
Location: Helsinki
Hobbies & Interests: Sports, mental wellbeing, personal development

Personality

Introvert — Extrovert

Analytical — Creative

Ad-hoc — Organized

Active — Passive

Attitudes & Skills Regarding Digital Services, Registration & Data Privacy

Prefers SoMe credentials over email/new

Uses various digital solutions

Technology orientation & skills

Data privacy concerns

Control of family's personal data

Frustrations & Challenges

- Husband's serious illness causes insecurity & fear. Lack of peer-support and help in discussing with children about their father's condition.
- The balance between children's mobile gaming and exercise
- Self-motivation for exercise and healthy habits
- Finding appropriate, reliable and timely health and wellbeing related information in easy to access format

Life Goals

- To lead a harmonious and normal life despite husband's health challenges
- To take care of family and maintain family's health
- To be a good parent and raise children according to her own values

End Goals

- To activate children and reduce their time spent on mobile gaming
- To develop mental health as part of holistic wellbeing
- To find peer support related to husband's health challenges

Experience Goals

- To feel reassured and relaxed
- To feel motivated, energetic and hopeful
- To feel secure and confident

Bio

Developing both physical and mental wellbeing is very important for Johanna. She exercises regularly, although she needs motivation to keep up this habit. She uses various digital solutions to measure and follow-up her physical condition development. She wants to stay healthy and also teach her children the importance of exercise.

Johanna would like to learn more about developing her mental wellbeing. She is really interested in mindfulness and meditation. Johanna would also like to find peer support appropriate and convenient for her to share her thoughts and experiences related to her husbands condition.

Johanna follows up her children's health and development fairly actively. She is interested in finding new hobbies for her children.

Johanna thinks that personalized content and services are basic elements that should already be an integral part of all digital services. She feels that personalization makes life easier, saves time and makes the world a better place.

Figure 22: Illustration of the Persona 1.

Mikko Koskela

Age: 36
Work: Entrepreneur
Family: Married, 3 year old child, family expecting a baby
Location: Helsinki
Hobbies & Interests: Reading, sports, geo-catching

Personality

Introvert — Extrovert

Analytical — Creative

Ad-hoc — Organized

Active — Passive

Attitudes & Skills Regarding Digital Services, Registration & Data Privacy

Prefers SoMe credentials over email/new

Uses various digital solutions

Technology orientation & skills

Data privacy concerns

Control of family's personal data

Frustrations & Challenges

- Personal health issues cause challenging nutritional restrictions
- Communicating and sharing wellbeing related information within the family and the different stakeholders
- Finding exhaustive, reliable and timely health and nutritional information
- Feels neglected related to his children's wellbeing as most services and health care providers focus solely on the mother and the child.

Life Goals

- To lead a harmonious and normal life in a communal environment close to nature
- To take care of family and maintain family's health
- To be a good parent and raise children according to his own values

End Goals

- To communicate and share health and wellbeing related information within family and different stakeholders
- To eat healthy food, find recipe and menu suggestions tailored to his family
- To follow-up and monitor his child's development proactively and to find personalized health and wellbeing related information

Experience Goals

- To feel relaxed and in control
- To feel happy and thankful
- To feel secure and confident

Bio

Mikko feels proud to be a father and wants to proactively follow-up his son's development and be actively involved e.g in child clinic visits. He sometimes feels insecure and would like to share his concerns and experiences with e.g. other families to normalize the situation.

Mikko is really interested in nutritional information. This is partly due to his personal health issues, but he also finds it important that his family eats fresh and healthy home made food.

Mikko enjoys outdoor activities and geo-catching with his son. He wants to teach his children the importance of nature. Mikko would also like to visit places and participate in events suitable for young children and families, but finds it difficult to search happenings matching his family's preferences. Similarly as with the health and wellbeing related content, the events information is scattered and lacking the data relevant for his family.

Mikko is very analytical and likes to read e.g. medical publications to gain deep insight about the subject and how the research has been done before deciding whether the information is useful and relevant for him.

Mikko is really selective regarding the digital services he uses. Before registration he wants to make sure that the service provides him concrete value.

Figure 23: Illustration of the Persona 2.

4.2.4 Stakeholder Map

A stakeholder map is a visual presentation of the different groups and stakeholders involved in a particular service and enables the identification and analysis of the relationships between these groups. Stakeholder map helps the identification of the pain points and the exploration of opportunity areas within the service. It may also support the definition of stakeholders, which the service provider or the customer may not be aware of. Different stakeholders can also be categorized based on their importance and influence related to the service. Nevertheless, a stakeholder map visualizes the complexity surrounding most services, in which all the groups and actors affect how well the service is received and perceived. (Stickdorn & Schneider 2011, 150-151.)

In this thesis, the aim of the stakeholder map was to visualize the complexity and the significant amount of various actors involved in either directly or indirectly affecting the wellbeing of a family. The analysis of the relationships between the stakeholders and the identification of pain points related to these relationships was intentionally left out in this thesis as it is considered to take a lot of time. Thus, the detailed stakeholder analysis is suggested as one of the prospects of future research in Chapter 5.

Nevertheless, one of the key insights from the customer research was that there is a broad and complex network of different stakeholders and both physical and digital services linked to the wellbeing of a family, illustrated in Figure 24. In the centre of the stakeholder map is the core, i.e. the family members, grandparents, relatives, and friends. The middle layer presents the stakeholders with a direct impact on the family's wellbeing. The outer circle illustrates the stakeholders, which have an indirect impact on the family's wellbeing. The area outside the circles provides examples of the enormous amount of various websites and digital services that the parents use to find information regarding health and wellbeing issues. By no means is the list of digital services presented here exhaustive.

The stakeholder map presented in Figure 24 illustrates the complexity the families face and even without identification of all the different pain points related to each actor and relationship, it becomes evident that the communication and interaction with each stakeholder requires an enormous amount of time and effort from the families. It is clear that there are vast amounts of service innovation opportunities and potential for making the lives easier for the families. The public sector and e.g. the City of Helsinki could play a significant role in driving and facilitating this change.

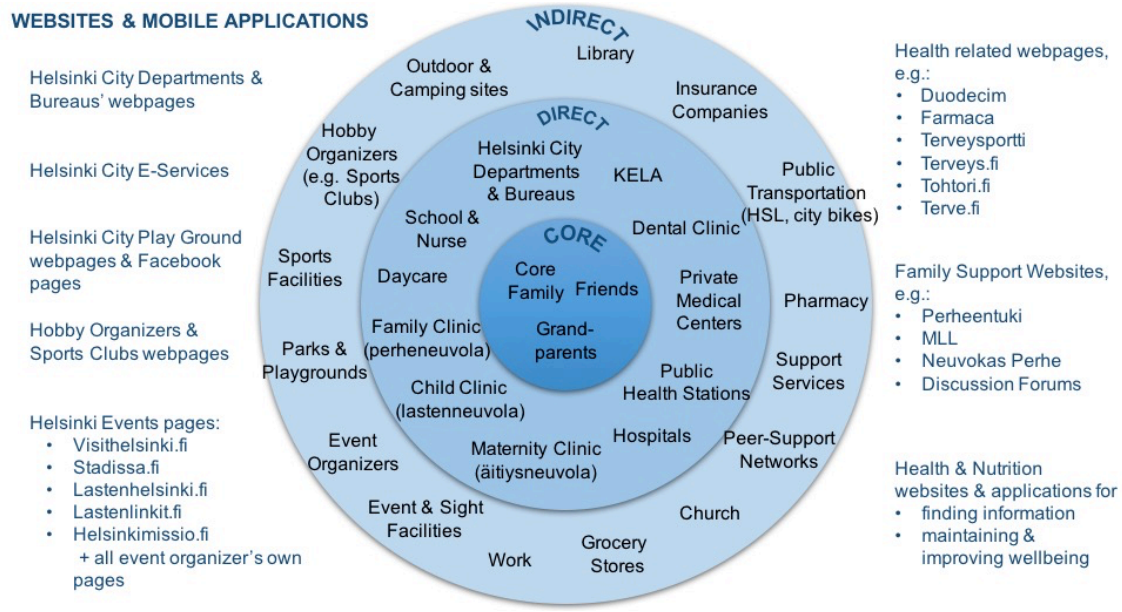

Figure 24: Stakeholder map related to the wellbeing of a family.

4.2.5 Key Trends

As discussed in section 3.4, monitoring and scanning the environment is essential in anticipating the societal, economic and technological changes and their future developments as well as anticipating the principles driving and motivating the customers (Raymond 2010, 14-15).

Environmental Scanning and *PESTE Analysis* (abbreviation from the terms Political, Economic, Societal, Technological and Ecological) are methods that help organizations to identify significant changes in the business environment. *Content Analysis* is a systematic and objective research method for identifying future trends by gathering and assessing information from various sources, e.g. internet and newspapers. (Ojasalo et al. 2015, 201.)

Due to the scope and limited time frame of this thesis project, the researcher decided to focus on defining the key social and technological trends affecting the future of health and wellbeing via Content Analysis. The key trends identified are presented in Tables 6 and 7. The trends, descriptions and the discussion on the potential implications of the trends are based on the following foresight sources: Hiltunen (2013), the Futures Center (2016), the Institute for The Future (2016), Trendone (2016), Trendwatching (2016), Sitra (2016), and the World Economic Forum (2016).

Technology Trend	Description and Implications
Smart Everything & Rise of the Internet of Things (IoT)	Advances in digital and networking technology, sensors and new materials are making many aspects of people's physical contexts responsive to environmental stimuli and creating new interactions between humans and objects – known as the Internet of Things (IoT). Smart ways of connecting people's behaviours to the physical world could improve the efficiency of systems such as energy, healthcare and transportation and the quality of life. At a larger scale, the smart cities agenda is integrating digital technology into critical systems including transport, energy, food, health, and water – cutting costs and resource usage. The IoT and increasing use of social media are blurring the distinction between users and producers; consumers and citizens, with potential to disrupt incumbent business models. Personal health gadgets, medical devices and general purpose computing in all sorts of devices blend as costs decline and access increases, which enables the proliferation of tools to analyse personal tracking and diagnostic data. Just in time information infrastructure helps people program mindfulness and design new habits.
Hyperconnectivity	Hyperconnectivity already has far-reaching effects on society and the economy, transforming everything from dating and elections to retail business models, education and healthcare, as anyone with a web connection can now access much of humanity's collective knowledge at minimal cost. People can also connect with like-minded individuals regardless of their location or background, and organize and effect change in ways that were impossible even a decade ago. However, this shift toward a hyperconnected world also creates new challenges concerning internet governance, transparency, privacy and the disruption of existing business models. As more objects with embedded sensors and internet connectivity are hooked up to the web, i.e. the IoT, further opportunities and challenges for individuals, communities and business will also begin to emerge.
Augmented Humans	Bionics, wearable technologies, sensors, augmented reality applications, as well as performance and memory enhancements could allow people to move, think, see, feel and hear with incredible speed and precision. The barriers that separate the physical world from the digital one will increasingly melt away. Technologically advanced exoskeletons, eyewear, and implants could allow people to work longer, retire an older age, lift more and interact with colleagues and data in new ways. Augmentation of senses could open up profound new ways to interact with one another and the world opening up new frontiers for experience, creativity, and relationships. People might choose to be able to hear colours for example, which is an ability that people with the neurological condition, synaesthesia have.
Nanosensors and the Internet of Nanothings	Scientists have developed sensors in the nanometer scale, small enough to circulate within living bodies and to mix directly into construction materials, which is a crucial first step toward an Internet of Nano Things (IoNT) that could take medicine, energy efficiency, and many other sectors to a whole new dimension.
Open AI Ecosystem - From Artificial to Contextual Intelligence	Over the past several years, the emerging technologies have linked together to form an open AI ecosystem. This ecosystem connects not only to our mobile devices and computers—and through them to our messages, contacts, finances, calendars and work files—but also to e.g. the thermostat in the bedroom, the scale in the bathroom, the bracelet on the wrist, the car in the driveway, enabling the development of very powerful and human-like digital Personal Assistants (PA). The interconnection of the IoT and the personal data, all instantly available almost anywhere via spoken conversations with an AI, could unlock higher productivity and better health and happiness for millions of people within the next few years. By pooling anonymized health data and providing personalized health advice to individuals, such systems should lead to substantial improvements in health and reductions in the costs of healthcare. Until today, the technology has been mostly lacking context. Up to now, machines have been forgetful to the details of our work, our bodies, our lives. A human PA, however, knows when you are interruptible, stressed, bored, tired or hungry. The PA knows who and what is important to you, and also what you would prefer to avoid. AI systems are gaining the ability to acquire and interpret contextual cues so that they can learn these skills as well. Although initially, these AI assistants will not outperform the human variety, they will be useful—and roughly a thousand times less expensive.
Robotization	Robotization enables services that are either partially or wholly automated. Robotization is also strongly associated with AI in the sense that the robots can perform different and more demanding tasks increasingly better, such as a personal assistant robot. Robotization will have huge effects in various industries e.g. in the transportation, logistics, healthcare and customer service.
Ubiquity of Data	In recent years the amount of data being produced has massively increased, and new digital technologies have resulted in exponential leaps in computing power. As a result, the

	use of open and big data analytics over the next decade is likely to become far more powerful and sophisticated, with significant positive and negative implications. For example, private or public organizations that successfully leverage the data can provide highly targeted products and services as well as increasing transparency. Public policy may also become much more efficient if researchers can analyse the real-time behaviour of millions of people at a time.
Social Connectivity and Emotional Health	Technologies for social connectivity and emotional health promote mental wellbeing among people. Technologies that encourage or facilitate social interactions and emotional contact through in-person or virtual communities can increase mental wellbeing. These technologies may provide social engagement, employment or volunteer opportunities, or access to information and services. Technology can promote community engagement in addition to improving health and reducing the risk of disability and death. Technologies to support social participation may include social media or virtual communities, real-time video conferencing, interactive games, social support networks or blogging platforms.

Table 6: Key technology trends.

Social Trend	Description and Implications
Empowered Consumers	Customers have more choice, information, and more opportunities than ever before. People are no longer limited by what is available, i.e. they become more selective about what they want and how they want it. Customers increasingly expect better, faster and more personalized services.
The Emergence of Intuitive and Contextual Experiences	Multi-sensory computer internet enables a more human internet to emerge, i.e. growing personalization of products, services, communication, and experiences. Non-textual interfaces also help overcome possible literacy and accessibility challenges. There are rising expectations that traditional health services, processes, tests, and treatments are made accessible via innovative new channels. Those expectations are being driven by time-pressed, ultra-demanding customers who want what they want, when they want it. This means providing distributed diagnosis e.g. via smartphones, public transport, and via the food people eat (e.g. biting an apple indicates the need for dental healthcare).
Health as Self-Enrichment, Achievement, and Status	Physical, mental and emotional peak performance have become a profound element of self-actualization, i.e. customers are fundamental to how they seek meaning in their lives. This trend is driven by: the health boosting features that are embedded into the environment; age of individualization regarding health and wellness in the form of e.g. individualized offerings and meals; virtual realities and real (physical, cognitive, emotional) improvements; impact indicators (instant, useful real-time feedback on health and wellness impacts); and distributed diagnosis (new, innovative and seamless ways to access health services).
Self-Tracking as a form of individualization	Customers are increasingly interested in observing, measuring and looking after their health by using digital products and services. Self-tracking, or Do-It-Yourself (DIY) Healthcare, is a new level of self-awareness enabling the customer to quantify his/her own activities. From the technological point of view, biofeedback sensors enable the measurement of physical functions such as heart rate, skin temperature, muscle tone and brain waves. This makes emotional and somatic states, which customers are not normally aware of, more visible, i.e. helping to improve the customers' lifestyles or to be compared to other people's data. Diverse applications and new self-tracking devices, e.g. context-sensitive sleep cycle alarm clocks or networked tennis bats, support people as monitoring and coaching partners.
The gamification of society, health and healthcare	The declining technology costs, growing clinical and professional interest in games, and an increasingly refined understanding of what makes health games work are shaping the landscape for health games.
Healthcare - From Cure to Prevention	Technological advances ranging from remote diagnosis to the quantified self, are allowing individuals to take more and more responsibility for their own health. Opportunities for healthcare innovation may also arise indirectly in sectors influencing people's health, e.g. construction, food and retail, transport and city planning. Smartphone applications that reveal detailed or hidden nutritional information simply by scanning an item's bar-

	code are already available. In many countries there is also an increasing focus on encouraging people to walk and cycle, accompanied by greater investment in the infrastructure and technologies that support healthier modes of travel. The sophistication and uptake of wearable technologies, as well as fitness applications and games, is rapidly increasing as well.
Perceptions of Science and Technology	The digital revolution, i.e. the rapid rise of personal computers, the internet, and mobile phones has profoundly changed how people work, communicate and learn. These technologies have mostly been met with enthusiasm, and they have been swiftly adopted. However, there is emerging skepticism about certain areas of technology, such as nanotechnology, biotechnology, and artificial intelligence, as well as the huge role digital technologies play in our lives. The skepticism ranges from the debate over unintended consequences and ethical issues, to how we should manage and moderate technology use, as well as deeper concerns about the long-term effects, for example on the cognitive abilities of young children. As a result some technological solutions could meet resistance in future, perhaps due to being perceived as unviable or socially unacceptable, which could in turn influence regulatory policy and the scaling of solutions designed to meet global challenges.
Crowdsourced Public Services	Over the next decade, as cities everywhere struggle to maintain services, there will be a rise of crowdsourced public services. Going beyond mere issue and complaint reporting, these initiatives will build data-rich frameworks that connect government with loosely coordinated citizen collectives. These efforts will drive innovation in how services are delivered and funded in caregiving, education, and other non-emergency functions, and become an incubator for creating new kinds of public services. Lessons from online social gaming will provide ways of motivating and rewarding volunteers, by turning routine tasks into engaging civil participation.

Table 7: Key social trends.

Hyperconnectivity, the IoT, and Smart Everything are driving many other trends shaping the world of tomorrow. They are transforming the civil society through social media and making radical transparency possible, thereby changing the relationship between citizens and government, as well as consumers and business. In both cases, power is shifting from large institutions to smaller organizations and citizens.

While smart solutions show excellent potential, governments, companies and community actors need to address the security and privacy concerns, e.g. who is responsible for the overwhelming amount of data sourced and stored? There are also implications for individual lives and communities that need consideration: how will rising dependence on smart devices and systems affect how we relate to one another? Will ”smart” living be about sharing data or also about sharing more profound things? Will smart solutions make people more productive or better at resting?

The increased ubiquity and analysis of personal, open and big data presents tremendous opportunities to optimize systems for efficiency and positive outcomes, but this largely depends on people’s willingness to share their data with business, government and other stakeholders. To drive the desire to share the data, the customers’ need to be given tools and methods to control when and how their data is shared and stored. Better terms of service and greater transparency around data gathering and storage could also help to address concerns.

Augmentation will have fundamental effects on human behaviour, even to the understanding of what it means to be human, which begs the question of what the new normal of the human condition will be along with how to ensure that augmented capabilities lead to a better quality of life for everyone? As technology becomes embedded into human bodies, the rights over the smart devices, the cost of obtaining the tools, the freedom to adapt them, and the ownership of the data generated by them, becomes more acute.

However, the rapid increase in access to information combined with the changes in consumer awareness drives the organizational and individual transparency. New models of interaction enable people and communities to embrace novel ways of achieving the results they want, from crowd funding to peer-to-peer sharing services. This trend could grow and continue to create a new form of the consumer economy in which individuals could choose to trade personal data in a transparent market transaction. Customers are empowered to take more control over their health (e.g. smart health tracking devices) and reduce the chronic disease burden (e.g. diabetes prevention services).

Games are also becoming an essential tool to promote behaviour change as well-designed games make facing difficult and frustrating challenges fun — and this dynamism is making games an increasingly valuable tool for promoting healthy behaviours. Games have the potential to help people establish specific, personal goals for their own health and wellbeing. Smartphones, as well as lightweight tools and sensors that track activity, are allowing and encouraging people to make healthier choices in their daily lives. Furthermore, by tapping into the power of friendly competition, social games - played in mobile spaces, online networks and even workplaces and communities—are turning health problems into collective efforts to improve health. The social dynamics and the social support in the collaborative health games keep people motivated to stick with their fitness goals and make healthier decisions.

While the health effects of everyday decisions such as food choices and exercise habits accumulate over time, it is hard for individuals to track progress accurately and to visualize and experience the benefits of good decisions. Game design elements—for example, keeping track of points, or more involved visualizations such as avatars— can provide feedback loops that enable people to understand the cumulative effects of everyday decisions and experience their health progress more tangibly. Games enable the measurement and tracking of progress and can, therefore, serve as an essential tool for ongoing data collection and facilitate patient-service provider communication and interaction.

4.2.6 Idea Generation

Idea generation refers to brainstorming sessions, in which different techniques are used to generate ideas and develop concepts in a structured and collaborative way (Liedtka & Ogilvie

2011; Stickdorn & Schneider 2011). There are several tools available for idea generation, and it is the designer's task to select the most suitable techniques related to the objectives of the design project or the brainstorming session (Stickdorn & Schneider 2011).

The idea generation for this thesis was carried out by the researcher through an iterative process based on the information and insights gathered during the design process so far, i.e. from the methods used in the discover stage as well as from the modelling of the customer data, personas, stakeholder map, and key trends. All possible ideas were written on a Post-it notes and then grouped utilizing the affinity map method, illustrated in Figure 25. The iterative process enabled the researcher to reflect, complement and modify the ideas by going through the key insights gathered earlier in the process.

Figure 25: Affinity mapping of the ideas generated.

Individual idea generation was found most appropriate due to the vast amount of information gathered, the broad nature of the concept of wellbeing and the different needs of the customers. In other words, it would have required several ideation sessions to cover different areas of wellbeing and the various customer goals and needs. Therefore, the objective of the idea generation was to identify examples of service ideas and areas to support the definition of the design drivers and context scenarios. Tables 8 and 9 summarize the results from the idea generation, i.e. presenting the different service areas with example ideas.

Theme	Example ideas
Developing physical wellbeing	• Smart monitoring, visual view and follow-up of the activity and exercise of the family as a whole and per family member (including exercise information also from daycare and school) • Exercise recommendations in accordance with the child's age and suggestions for hobbies and sports places based on family's preferences • Personalized fitness tests, instructions, and recommendations based on the customer data and behaviour • Smart monitoring of parents and children's' sleep (amount and quality), visual representation of the data with recommended actions for improvements • Gamification of exercise & activity and the possibility to gain virtual points to compete with family members and to be used as virtual currency to buy e.g. new sporting gear • Recommendations and virtual presentations (360-degree view) on playgrounds, parks, outdoor activity places, hiking, walking and cycling routes enabling the preview of the place
Developing mental wellbeing	• Smart diary (entries by text, voice, image, video) and documentation of emotional state ("How are you feeling today?"); recognizing the mental condition of the user and the early signs of depression; providing recommended actions enabling low-barrier access to mental health services • Life coach with high-quality content, inspiring daily quotes, tools and tips for life management, balancing work and personal life • Tailored yoga, meditation and mindfulness exercises and sessions
Nutritional advice and planning	• Nutritional advice and dietary planning (e.g. weekly menus and recipes) based on personal and family needs, health conditions, allergies, etc. • Scanning the daily meals, smart monitoring and visual representation of nutritional content and habits with recommended actions for improvement based on user data
Family health records, follow-ups	• Health records, treatment instructions, medication and vaccination data per family member in one place; e.g. from maternity and child clinics (neuvolat), doctor's appointments, school nurse check-ups (requires strong authentication by the customer to view and modify the information) • The possibility for parents to share their personal health record's with spouse • Possibility for the parent to monitor and compare the child's development anytime in visual format by providing e.g. weight, height or examples of behaviour and speaking ability
Paternity services	• Take the father better into consideration in the family's wellbeing services • Information, content, and services based on and focusing on the father's needs and preferences fostering the wellbeing and supporting the men in their role as a father.
Training and smart guidance	• Virtual reality training (e.g. preparing for childbirth, helping to take care and understand baby's needs) • Smart applications to teach, monitor and provide feedback and recommendations related to e.g. dental care, exposure to the sun
Peer support, social interaction and networking	• "Family Tinder" to find like-minded parents to meet e.g. online or in playgrounds and parks, to discuss and share experiences to "normalize" personal situations and challenges often related to child's development and behaviour • Tailored peer support service enabling the preferred channel (e.g. face to face, chat, email, video call), level of anonymity and selection of support person based on personal preferences and situation

Table 8: Ideas related to improving health and holistic wellbeing.

Theme	Example ideas
Communication and interaction with multiple stakeholders	• Enabling the family to share information and interact with multiple stakeholders at the same time, e.g. in a situation when the child is ill the parent can inform all the relevant stakeholders at the same time (work, daycare, school) that he/she needs to stay home to take care of the child
Context based smart information search and proactive services	• Context related search (by voice, text, images, etc.) and receiving information & suggestions for value adding services related to e.g.: ○ Child getting sick: the service provides information in preferred format (e.g. video, articles) related to the symptoms; recommendations for home care and prescription-free medication in the nearest pharmacy, possibilities for consultation with a nurse or doctor via voice, video or chat; or the possibility to book doctor's appointment in the healthcare centre based on e.g. doctor's expertise in the illness, location, or the best customer satisfaction ratings ○ How a baby changes the family's life: the service provides holistic set of information and guidance on how to take care of the baby, what kind of equipment is needed with targeted offers, recommendations for nutritional facts and recipes of healthy food for pregnant mother, how to apply for family (e.g. maternity) allowances and other financial advice, possibilities to search for a bigger home in various neighbourhoods, etc. ○ Starting school: the service provides information about the different schools available including e.g. size, the number of children, location, possible problems with moisture damages and internal air quality, teachers' employee satisfaction, families' and children's satisfaction, school bullying statistics and trends. In addition, the parent could apply for the preferred school of his/her choice directly from the service. ○ Finding hobbies or summer camps for children: the service provides suggestions with the possibility of instant booking, route, directions and public transportation, offers for sports gear, etc. ○ Finding events: in the case of e.g. an art exhibition, the parent can search for information based on location, availability, age recommendation, price, and by more detailed criteria such as the possibility of the small children to touch the art in an exhibition, or by particular topic of interest, e.g. animals. • Proactive suggestions and recommendations regarding personalized wellbeing content, activities, hobbies, peer support, etc. • Targeted ideas for bringing enjoyable, easy to implement experiences into everyday life taking the family's interests and needs into consideration
Smart time and task management	• Reminders for taking medication, proactive and simple booking of health and dental check-ups, visits to maternity and child clinics, renewing vaccinations, to check blood values, etc. to prevent diseases and stay healthy • Smart calendar with automatic update and modification of the personal and family schedule, suggesting and saving appointments, hobbies and training times, recommending and booking time for exercise based on personal preferences and calendar availability, taking transitions into consideration from one place to another enabling realistic scheduling • Suggested action plan for the coming week taking the calendar, daily routines and purchases (food, house cleaning, shopping, etc.) into consideration, enabling e.g. the automatic order and delivery of e.g. groceries based on personal preferences • Easy input and management of tasks, to-do lists and documentation of ideas

Table 9: Ideas related to communication, context based smart search and time management.

4.2.7 Design Drivers

The design drivers determine what information and capabilities the customer personas require to accomplish their goals. The design drivers are not features or detailed specifications of the product or service. Instead, they address the customer's needs and objectives (e.g. functional needs, qualities, and experience attributes) and guide the detailed design of the service. (Goodwin 2009, 299-304; Cooper 2014, 106-109.)

The process for defining the design requirements for this thesis project has been iterative in nature, taking the earlier stages of the design process, i.e. combining the key insights from discover stage, personas, stakeholder map, key trends, ideas generation, as well as from the context scenario development and visualization process.

There were five design drivers identified in this thesis project:

- Systemic approach providing holistic and context related services and enabling the customer to communicate, interact and share wellbeing related information within the family and the different stakeholders.
- The anticipation of future situations enabling proactive services taking the family's life stages into consideration.
- Supporting the families in positive, warm and human manner, offering customer oriented service for both parents and based on the understanding of personal and the family's common needs.
- Aggregating reliable, relevant and timely content and services based on customer preferences and targeted to the context of the situation
- Offering flexible and intuitive ways of using the service anytime and anywhere, with personalized customer experience based on the authentication level preferred by the customer.

The design drivers defined are illustrated in Figure 26.

Figure 26: The design drivers for the Family Wellbeing Service concept.

4.3 Develop

This section describes the tools and methods used for the develop stage of the design process, i.e. the designed concept, the Family Wellbeing Service, is presented through context scenarios and visualized with storyboards. In addition, the concept overview, key features, and benefits for different stakeholders are discussed, and a preliminary Service Logic Business Model Canvas for the wellbeing service concept is presented.

4.3.1 Context Scenarios and Visualizations of the Service Concept using Storyboards

Goal-directed scenarios provide an iterative way for defining a product or service behaviour from the specific customer point of view. The *context scenarios* are plausible, high-level and hypothetical descriptions of an ideal or typical interaction in a particular service context from the persona's point of view enabling the examination of the service situation through a clearly defined character (e.g. persona). Context scenarios are created in the level of detail allowing a meaningful exploration of a particular aspect of a service offering or customer experience. Context scenarios can be presented by e.g. using plain text, storyboards or even videos focusing on human activities, perceptions, and desires. Research data is essential to construct plausible situations around which the scenario can be based. (Goodwin 2009, 308-362; Stickdorn & Schneider 2011, 184; Cooper et al. 2014, 101-106.)

According to Stickdorn and Schneider (2011, 184), the context scenarios are useful in almost any stage of a service design project enabling knowledge exchange between various stakeholders involved. Regardless of the context or type of scenario used, they all help to review, analyse and understand the driving factors ultimately defining a service experience. Furthermore, the context scenarios form the basis for visualizations and support the definition of the design drivers. (Goodwin 2009, 362; Stickdorn & Schneider 2011, 184; Cooper et al. 2014, 101-106.)

A *storyboard* is a cartoon-like series of images, drawings or photographs that visualize a process or a sequence of events of an existing service or e.g. a hypothetical implementation of a new service prototype (Stickdorn & Schneider 2011; Tschimmel 2012). According to Stickdorn and Schneider (2011), the storyboards should incorporate as many contextual details as possible, so that everyone in the design team can easily understand what is going on in each phase. They also state that the objective of a storyboard is to obtain insights into the customer experience being evaluated. For this purpose, real-life or imaginary scenarios can be utilized. Stickdorn & Schneider (2011) and Tschimmel (2012) state that storyboards are useful for provoking meaningful analysis, identifying problem areas as well as sparking ideas and areas of opportunities when e.g. testing the user interactions with a product, service or business model.

In this thesis, storyboards were used to visualize the context scenarios of the two personas defined in section 4.2.3. The context scenarios are presented in prose format followed by the respective storyboard illustration. A total of four context scenarios and storyboards are presented. The first two scenarios relate to the persona Johanna Grönroos, and last two scenarios present the viewpoint of the second persona Mikko Koskinen. The context scenarios have been defined so that they take a holistic perspective into the persona's and his/her family's situation and wellbeing, providing meaningful information and service and making their lives easier.

Context Scenario 1
Registering to the Family Wellbeing Service:

Both personas, i.e. Johanna and Mikko have registered themselves and their families into the new Family Wellbeing Service. Johanna used her Facebook credentials for the registration as she finds it convenient. Mikko registered using his email credentials as he is concerned about the data privacy issues and the risk of his family's personal data ending up in wrong hands. Both personas used the opportunity to select topics of their interest and their preferred service providers and information sources during the registration process enabling a personalized service experience. The Family Wellbeing Service utilizes the latest technology enabling

it to learn from the behaviour of the user, i.e. customizing the customer experience even further, providing recommendations and tailored services proactively. Interaction with the service can be done in the preferred format (e.g. voice and text) of the user, and depending on the context. Figure 27 illustrates the registration process from the viewpoint of Johanna.

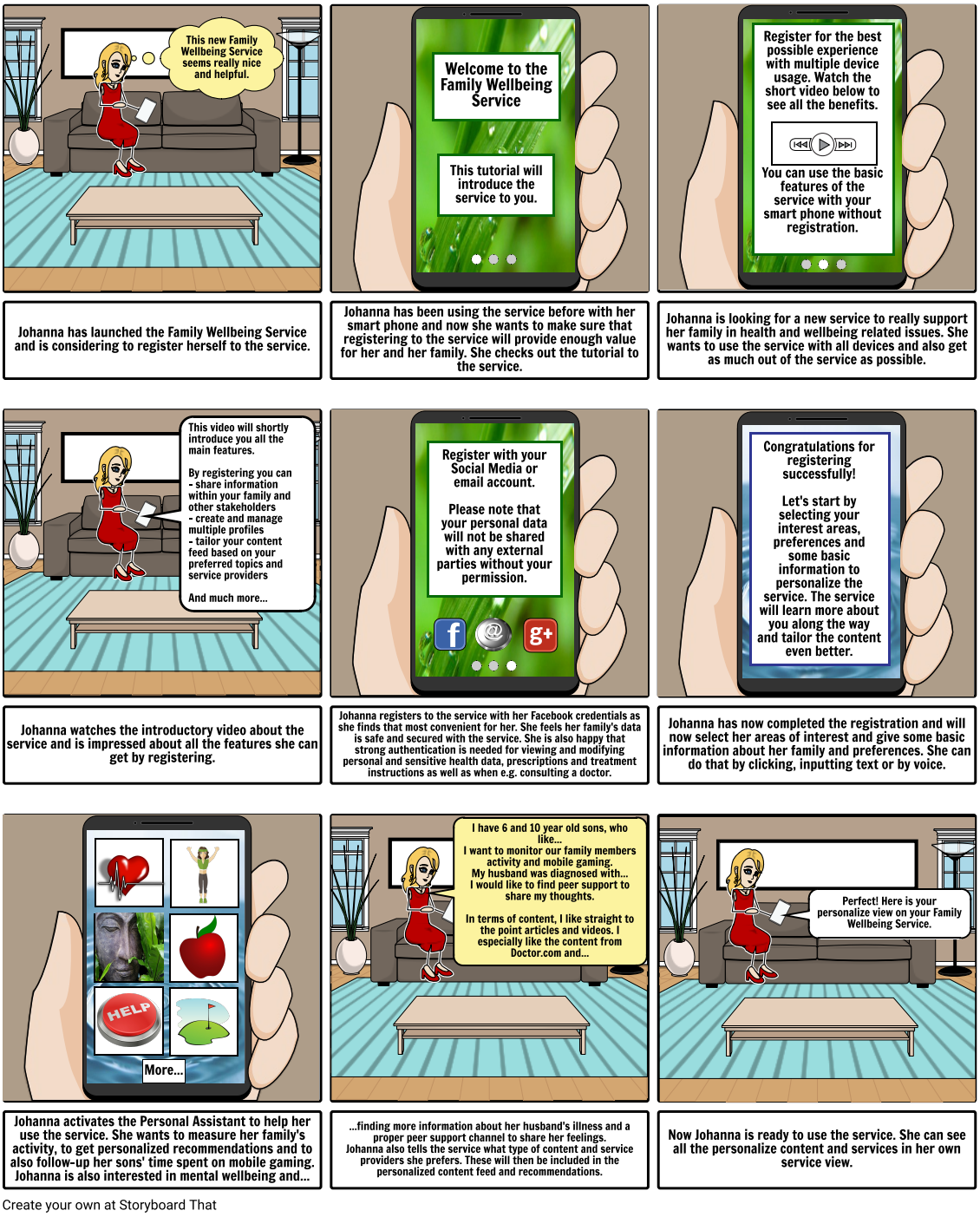

Figure 27: Storyboard for registering to the Family Wellbeing Service.

Context Scenario 2

Johanna Grönroos: Holistic physical and mental wellbeing management

Developing both physical and mental wellbeing is crucial for Johanna. In order to motivate herself and keeping her family active, she follows up her family members' activity in the new Family Wellbeing Service. She can see e.g. how much and what kind of exercise they have all been doing as well as the amount and quality of sleep. In addition, she can monitor the time spent on e.g. mobile gaming by her children. Thus, Johanna checks out her family's activity level and development from the past month. She can see that all other family members have been active and slept well except her oldest son Henri, who seems to be spending more and more time on mobile gaming. Johanna is really concerned about the situation and would like to find an inspiring hobby to Henri motivating him to exercise and spend more time outdoors. Johanna has activated the Personal Assistant feature in the Family Wellbeing Service and asks the Assistant to find possible hobbies for her son based on the interests of Henri, Johanna's requirements regarding e.g. location, schedule and public transportation possibilities. The Assistant provides Johanna possible hobbies for Henri based on the family's criteria. Johanna will show the options to Henri and discuss the different hobbies with him later in the evening.

Then the Assistant proactively shows Johanna's mental wellbeing data illustrating that Johanna has not been feeling very well. Johanna is using a smart diary, in which she can record her emotional state, notes about her mental wellbeing and activity. In addition to this information, the Assistant also uses the calendar information making a note that Johanna has not seen her friends in a long time. The Assistant is concerned about Johanna's mental wellbeing and suggests that she will invite Johanna's good friend Niina for coffee on an evening when Johanna has no other plans. Johanna explains that she has been feeling depressed due to her husband's health problems. The Assistant also presents a new meditation session tailored for Johanna as she knows that Johanna is really interested in finding methods for developing mental wellbeing. In addition, the Assistant shows potential peer-support channels and persons based on Johanna's preferences and suggests that Johanna would also talk to some of them. Johanna feels relieved and much better since she would not have had the energy to find all this information herself. She decides to try the new meditation session and feels confident that the situation with her son's mobile gaming will be resolved.

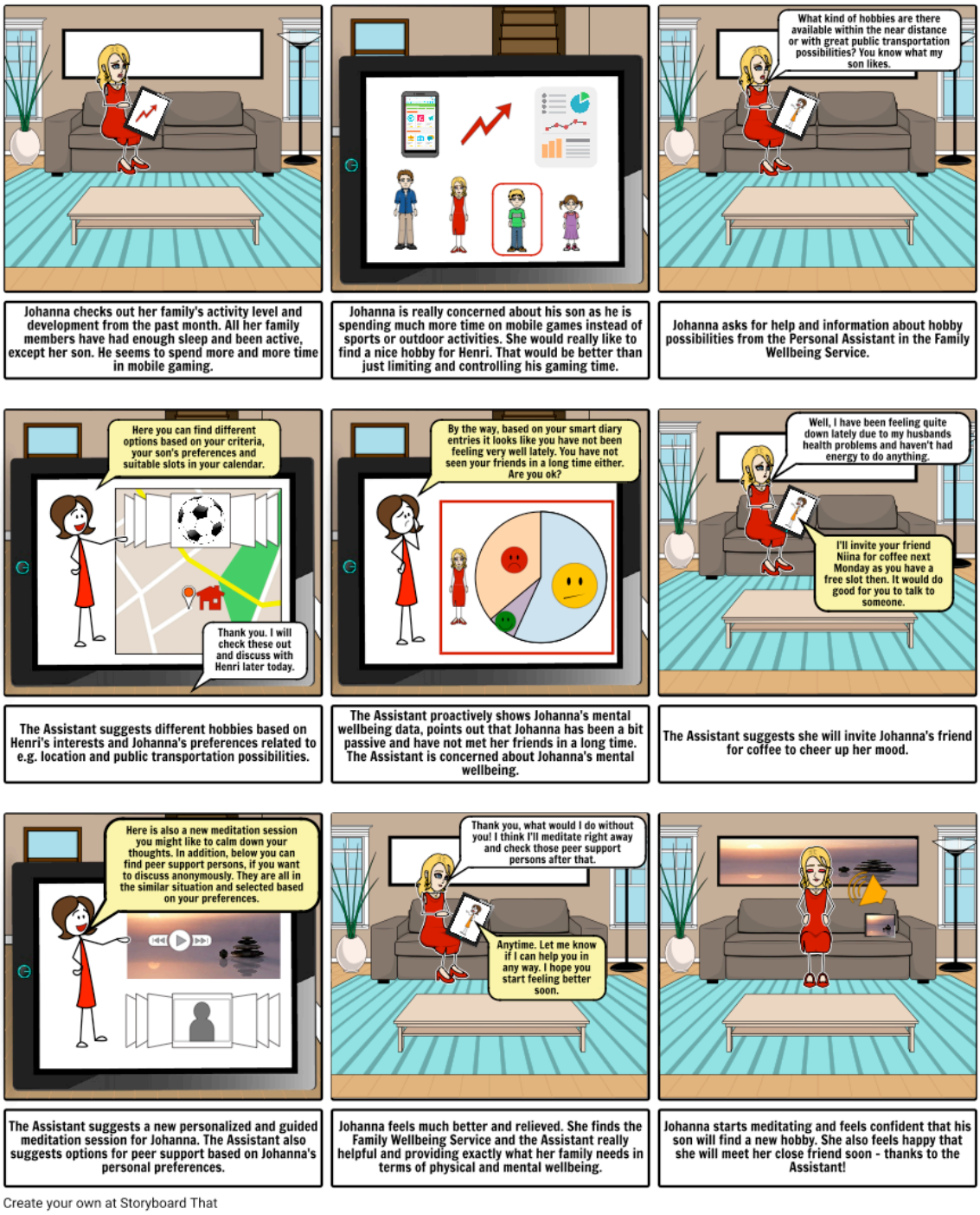

Figure 28: Storyboard for the holistic physical and mental wellbeing management.

Context Scenario 3
Mikko Koskinen: Child getting sick

Mikko wakes up his 3-year-old son Jaakko and realizes that he is not feeling well. Jaakko is wearing a smart pyjama shirt, which indicates that he has fever. Mikko also notices that Jaakko's skin is covered with some kind of rash and red spots. Mikko is worried about his son and also feels a bit stressed as he knows he should be leaving for work soon. Mikko takes a few images of the rash on Jaakko's skin. The Personal Assistant shows that Jaakko has 38,9 degrees of fever and asks how she can help Mikko. Mikko asks the Assistant to find the possible cause of the symptoms. The Assistant provides a possible diagnosis, Roseola, but also suggests that Mikko confirms this with a doctor. The Assistant suggests an appointment with a doctor having excellent customer reviews and expertise in these type of children's deceases. (Consulting a doctor would require Mikko to use strong authentication.) Mikko feels that he can ask a doctor later if necessary and for now to see how the situation evolves. The Assistant provides Mikko some medical articles and video content about Roseola based on Mikko's preferences. Then the Assistant proactively suggests a babysitter service showing the persons, who would be available that same day accompanied by the possibility of instant booking. The Assistant has selected the babysitters based on Mikko's criteria. Mikko decides that he will stay home and use babysitter service the next day if necessary. Mikko asks the Assistant to inform his employer and the daycare that Jaakko is sick.

Then the Assistant proactively indicates based on the information received from Mikko's family's smart medicine cabinet that they have run out of the medication they typically use for lowering Jaakko's fever. The Assistant offers Mikko the possibility to make an order for the medicine to be delivered to their home within the next couple of hours.

Finally, the Assistant informs Mikko about the new episodes of Jaakko's favourite cartoon to make Jaakko feel better. Mikko gives the tablet computer to Jaakko and lets him watch the cartoon while he makes Jaakko some breakfast.

Mikko feels really relieved how easily everything was handled with the Assistant service. Before it took a lot of time to find information, book a doctor, inform the employer and daycare, search for and book a babysitter, etc. Now he can focus on the most important thing - taking care of his son.

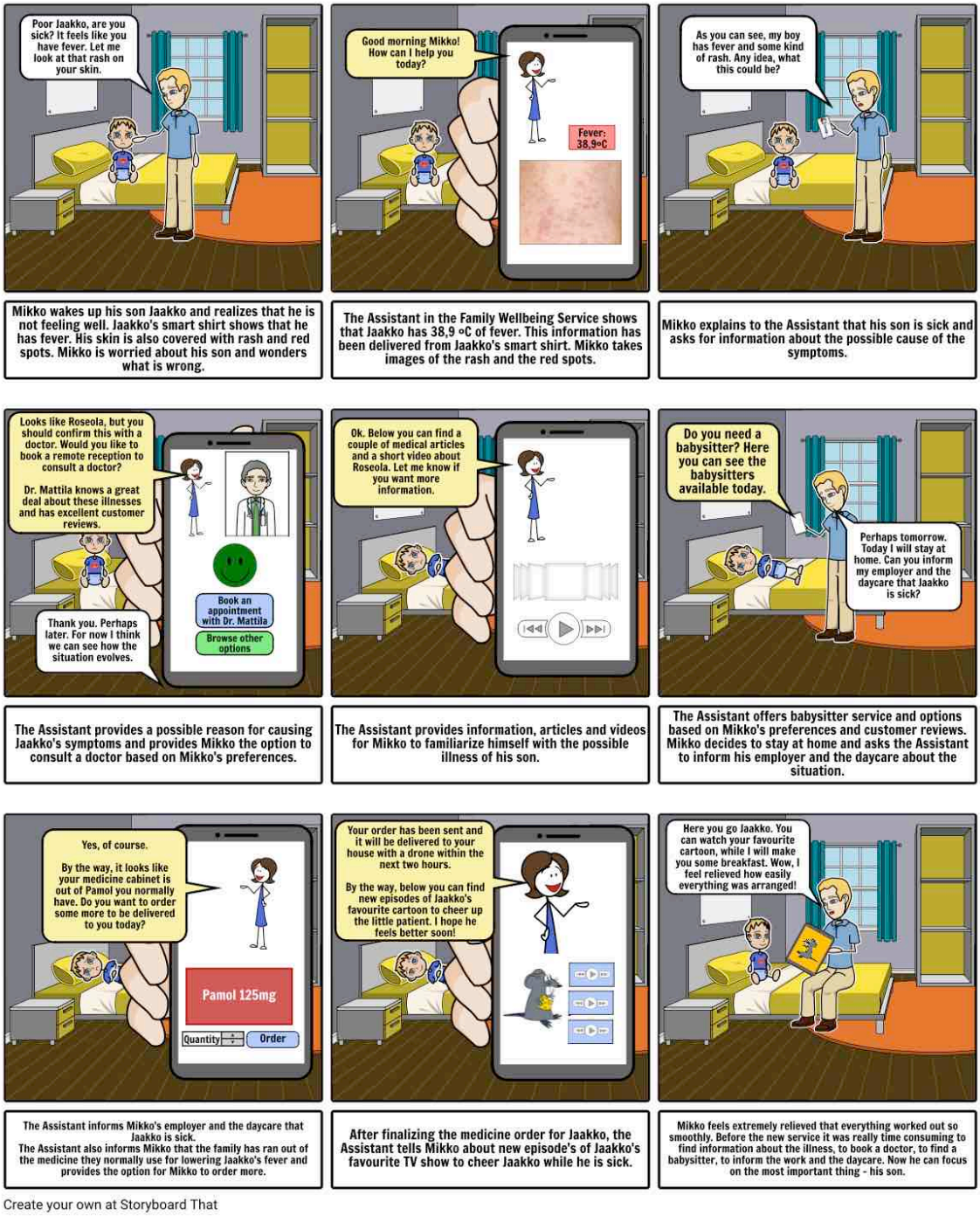

Figure 29: Storyboard for child getting sick.

Context Scenario 4
Mikko Koskinen: Holistic Family Health & Nutrition Service

Mikko wants to book a new appointment for Parental Clinic (the new name for Maternity and Child clinic focusing on the whole family) and launches the Family Wellbeing Service. The service offers suitable slots for the appointment based on Mikko's family's calendar. Mikko books an appointment for the following Wednesday, and it is automatically updated to the family calendar. Mikko and his wife Maria can also check their health data (e.g. previous doctor and Parental Clinic visits, medicine prescriptions and treatment guidance) through the Wellbeing Service. (To view or modify the detailed health data Mikko or her wife need to use strong authentication.)

Mikko notices a new feature in the service enabling him to check the child's development by providing the weight, height and e.g. examples of how Jaakko speaks. The service provides graphs and comparison on how Jaakko is developing on the average. Both Mikko and Maria find this really nice as they feel a bit uncertain and want to follow-up Jaakko's development more frequently than the official Clinic visits.

The Family Wellbeing Service also provides recommended content, articles and recipes tailored to Mikko's family's needs and health conditions. Mikko chooses one recipe they want to try out. Their grocery shopping list is automatically updated with the ingredients they don't have in their refrigerator and delivered to their favourite shop. Maria is especially happy about the positive way the food and nutritional instructions are provided for a pregnant woman. Before this new service, the guidance was provided in negative style and focused only on what you are not supposed to eat while pregnant. Now, Maria gets recipes tailored to her situation making sure she eats healthy.

Then Mikko decides to deep dive into the Father's Channel in the Family Wellbeing Service. He is excited that there are so much content and personalized information for him. He is especially looking forward to trying out the virtual reality classes on various topics, e.g. childbirth and understanding the baby's needs. While Mikko is educating himself with the latest technology, Maria decides to take Jaakko out to the park to meet new friends they met through the Family Wellbeing Service. Both Mikko and Maria feel very happy and relieved. They find the new Family Wellbeing Service providing the concrete value, making their life easier and saving time a lot of time. Now they have more time to spent together as a family.

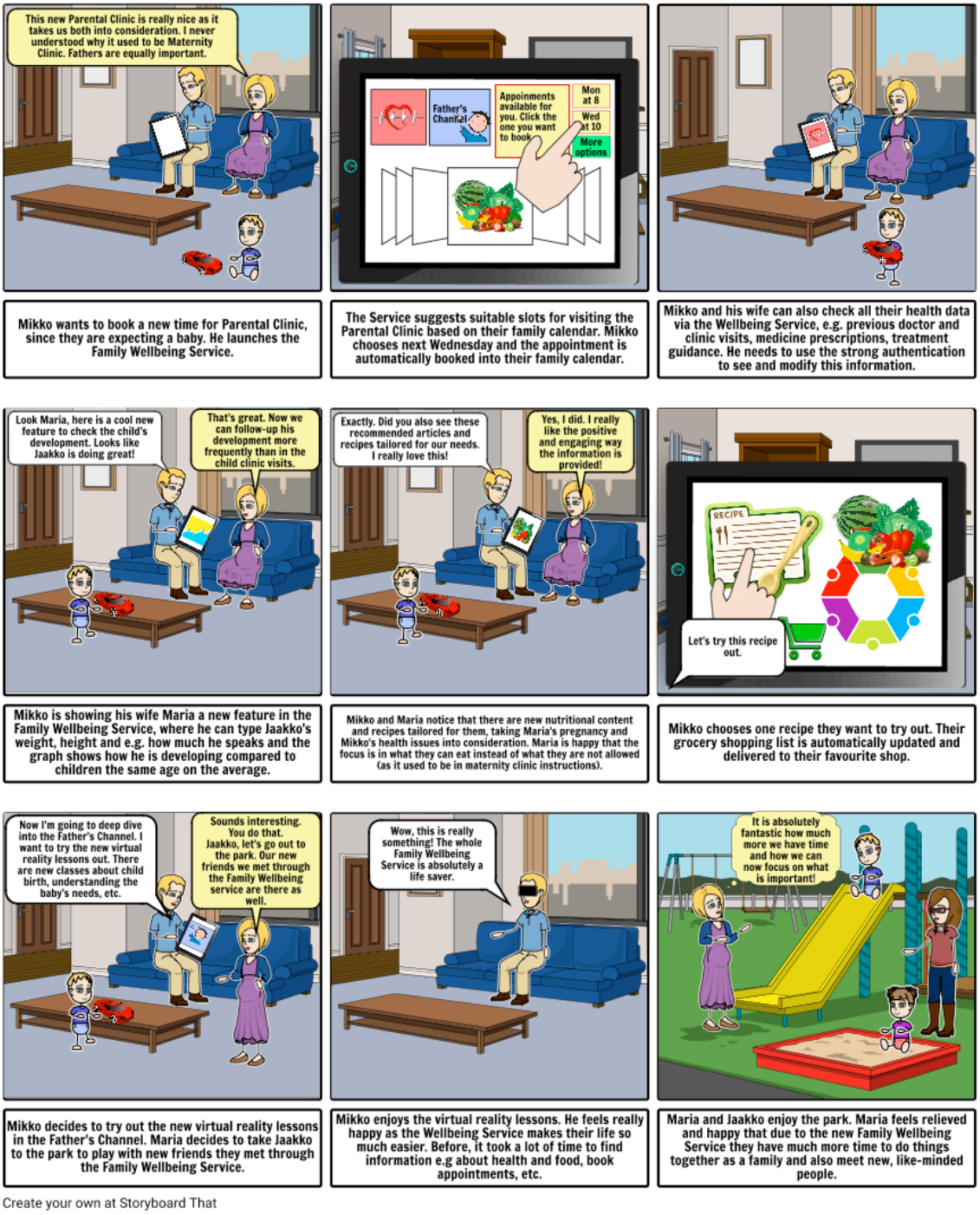

Figure 30: Storyboard for holistic family health & nutrition service.

4.3.2 Overview, Key Features, and Benefits of the Service Concept

This section provides an overview, key features, and benefits of the Family Wellbeing Service Concept designed in the thesis project.

As discussed earlier in this thesis report, one of the key insights from the design project was that there is a broad and very complex network of different stakeholders, physical and digital services that the families face and need to interact with related to their wellbeing. The communication and interaction with each stakeholder and finding relevant information requires an enormous amount of time and effort from the family. Thus, there are a vast amount of service innovation opportunities and the potential for making the lives easier for the families, saving time and providing value with the personalized service offering. The public sector and e.g. the City of Helsinki could play a central and significant role in driving and facilitating this change by building a Wellbeing Service Platform for offering personalized and context related services enabled by the collaboration of different stakeholders and service providers. The overview of the service ecosystem is illustrated in Figure 31.

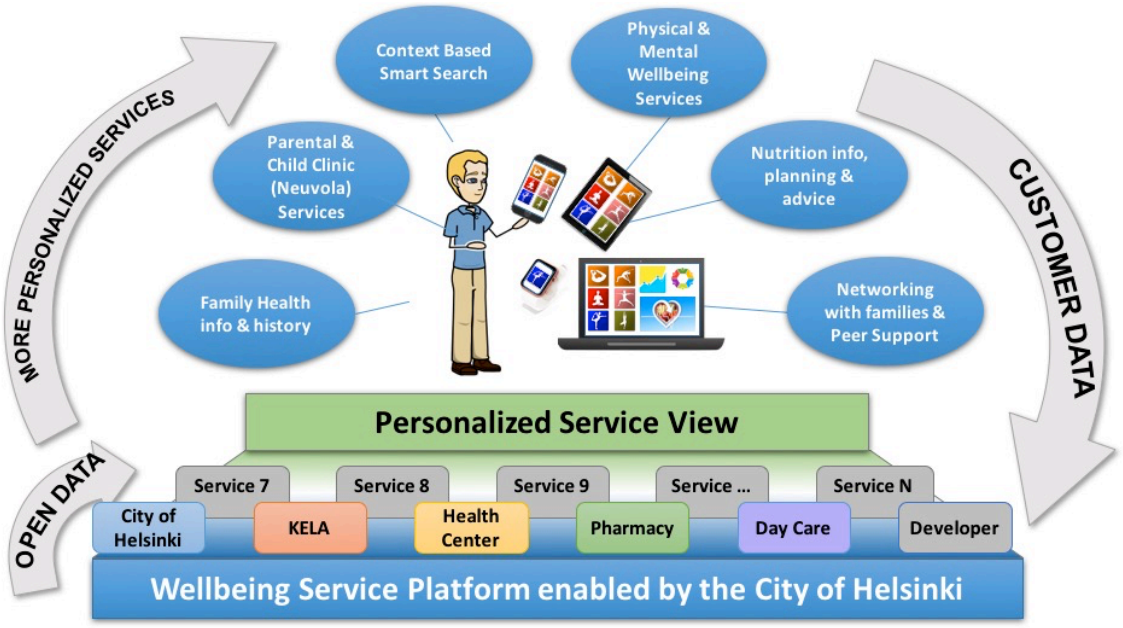

Figure 31: The City of Helsinki as the facilitator of the Wellbeing Service Platform and the service ecosystem.

The Wellbeing Service Platform would enable the various stakeholders, e.g. KELA, health centres and pharmacies, daycare and school, private sector service providers and developers, to provide context related services to the customer through a personalize service view. In other

words, the Wellbeing Service Platform enables the City of Helsinki to offer the systemic approach, taking the future life situations into consideration, and enabling the interaction and sharing of wellbeing related information within the family and the different stakeholders. Furthermore, the platform would allow the aggregation of reliable, relevant and timely content and services based on customer preferences.

Another key aspect of the concept is that the Family Wellbeing Service needs to support the families in positive, warm and human manner, offering customer oriented service for both parents and based on the understanding of personal and the family's common needs. In addition, it needs to provide flexible and intuitive ways of using the service anytime and anywhere, with personalized customer experience based on the authentication level preferred by the customer. The idea is that the degree of personalization increases with the stronger level of authentication. The service can be used without any registration, but then offering more basic features and customization through one device. The key features of the Family Wellbeing Service concept enabled by different authentication levels are presented in Figure 32.

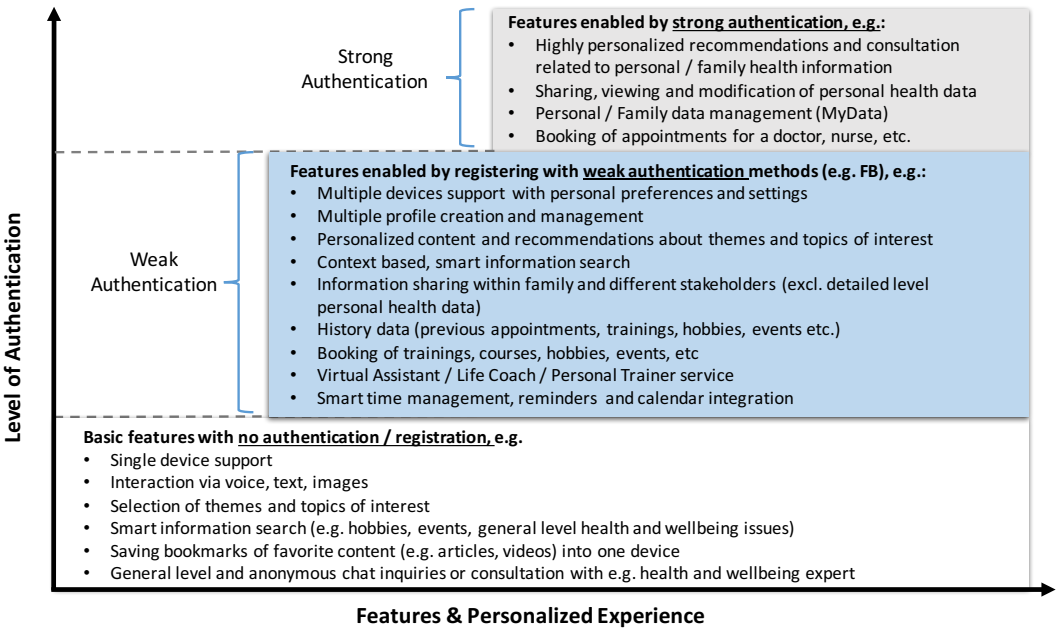

Figure 32: Key features of the Family Wellbeing Service Concept enabled by different authentication levels.

The City of Helsinki is in a central position in facilitating the service ecosystem and platform increasing the health and wellbeing of families, while simultaneously creating new business opportunities for different stakeholders. The benefits of the Family Wellbeing Service concept

and the platform are listed in Table 10, and the high-level business model will be discussed and presented in section 4.3.3.

Stake-holder	Benefits
Customer	• Context-specific, personalized services and relevant information regardless of time, place or device the customer is using • Interaction and information sharing with the stakeholders and wellbeing experts • Holistic wellbeing service offering from one service view, and the possibility to save, view and modify information and documents • Possibility to enrol into wellbeing training sessions and activate services • Saves an enormous amount of time by reducing the efforts needed for finding the right and relevant information • Proactive services and reminders make the daily lives easier and reduce the burden of trying to remember various routine and practical tasks (e.g. booking wellbeing related appointments) • Increasing the feeling of security, confidence and being in control of the family's wellbeing • Motivating and driving healthier ways of living
The City of Helsinki	• Ability to provide holistic and truly valuable wellbeing services for the citizens providing superior customer experience • Reduced amount of customer support contacts enables the city to allocate re-sources more efficiently • Reduced number of training (e.g. perhevalmennus) to be arranged and broader au-dience as the families can participate via online courses • Increased amount of customer data (service usage, customer behaviour and prefer-ences) to drive the service development, city planning and the internal process and operational management • Increasing the transparency of e-governance through open data • New business opportunities through facilitation of the Wellbeing Service Platform • Enhanced and more personalized communication and services improve the city im-age • Well-functioning and customer centred services bring competitive advantage to the city in attracting new residents and partners
3rd parties	• New business opportunities through collaboration with the city and developing ser-vices distributed through the Wellbeing Service Platform • New service ideas and improvement of existing services through the use of open data

Table 10: Benefits of the Family Wellbeing Service Concept and the platform for different stakeholders.

4.3.3 Preliminary Business Model for the Service Concept

Ojasalo et al. (2014) have developed one of the most wellknown and utilized business model frameworks, the business model canvas (BMC), further to incorporate the logics of service dominant thinking, bringing deep customer understanding and empathy to the model. The original BMC has been developed to help companies to capture, visualize, understand and communicate their business logic (Ojasalo et al. 2014).

According to Ojasalo et al. (2014), some researchers find the original BMC representing mainly GDL and the traditional Porter's value chain thinking. In this logic, the value is created inside a company through its activities and resources and delivered to the customer at the end of the value chain as discussed in Chapter 2. Thus, the objective of the research done by Ojasalo et al. (2014) was to create a more service-dominant logic (SDL) oriented version of the BMC, for taking both the service provider's and the customer's perspective into consideration. The revised service-logic business model canvas (SLBMC), developed by Ojasalo et al. (2014) is presented in Figure 33.

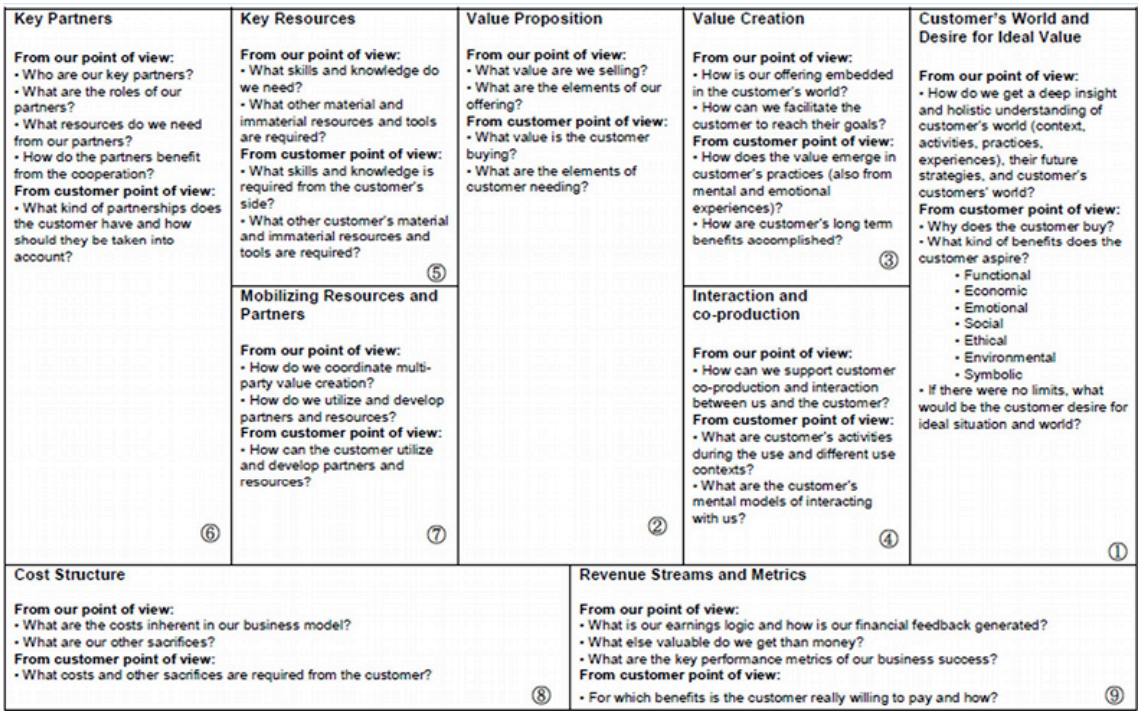

Figure 33: The Service Logic Business Model Canvas. Adapted from Ojasalo et al. (2014).

According to Ojasalo et al. (2014), the SLBMC is most effective when it is integrated into the service design process. Diverse service design and foresight methods should be applied for gathering information and insight, ideation and the development work for designing the concept and the business model. Ojasalo et al. (2014) emphasize that the SLBMC should be defined separately for each customer profile and segment of the service provider. However, this

requires a more detailed design of the concept and the complete overall business model to be in place. Thus, in this thesis, the SLBMC has been utilized to provide a high-level overview and consolidated view of the concept for all customer profiles, including the preliminary elements of the business model. The consolidated SLBMC for the Family Wellbeing Service concept is presented in Figure 34.

Key Partners

- Private and public healthcare and wellbeing service providers (e.g. medical and dental centers, clinics, hospitals, pharmacies)
- City departments
- Government Agencies, e.g. KELA
- Daycare centers and schools
- Hobby and event service providers
- Web service providers for families (e.g. MLL, Neuvokas perhe)
- Web service providers for medical information (e.g. Duodecim)
- Libraries
- Parks and playgrounds
- Service & UI designers
- System integrators
- Developers

Key Resources and Skills

- Deep customer understanding and customer experience design in digital channels
- Business model and value creation in multi-stakeholder environment
- Legislation & contract management
- Service and process automation
- Customer Service
- Platform management and system integration enabling multi-service provider model
- Data privacy and management (MyData, Open Data)

Mobilizing Resources & Partners

- Coordination of multi-stakeholder value creation
- Utilization and development of partners and resources

Value Proposition

The Family Wellbeing Service provides holistic and flexible solution for increasing the health and wellbeing of the families by proactively offering:

- personalized and context related services and support for current and future life situations
- targeted, reliable and timely information and recommendations with customer oriented, positive and warm style.

The Family Wellbeing Service makes the family's daily life easier by providing services tailored to personal needs and by saving an enormous amount of time by enabling simple interaction and information search in the multi-stakeholder environment.

Value Creation

The Family Wellbeing Service offers a companion to support the family in their daily life and anticipates future situations.

Value is created by proactively providing highly relevant content and personalized services, saving time and energy by removing the complexity related to finding information and interacting with multiple stakeholders.

Interaction & Co-Production

The Family Wellbeing Service facilitates customer oriented ways of finding, sharing information and interacting with different stakeholders by offering the means and channels most appropriate for the customer.

Customer's Desire for Ideal Value

Functional: supports all devices with intuitive UI, provides holistic, convenient and context related services (systemic approach) and anticipates future life situations, enables multi-profile management

Economic: saves time by providing relevant, targeted, reliable and timely information and by simplifying the management of family's health and wellbeing related issue

Emotional: increases security, confidence, and happiness of the customer by providing understanding and support in human and warm manner

Social: increases networking with other families and provides comprehensive peer-support service for diverse needs

Preliminary Cost Structure

- Detailed design (customer journeys, user interfaces, interaction, etc.), testing and implementation of the service
- Platform & IT development, architecture design and system integration (incl. customer, profile, identity & access management required in detailed authentication and service levels)
- Data privacy and MyData management
- Service maintenance and customer support
- Contract and partner management (stakeholders)
- Advertisement and marketing costs
- Content design, aggregation, and management

Preliminary Revenue Streams and Metrics

- Public funding
- Incomes and fees from wellbeing service providers and developers utilizing the platform provided by the City of Helsinki
- Cost savings from more efficient allocation of resources (e.g. reduced number of customer service calls)
- Indirect health cost savings due to preventive healthcare, increased physical and mental wellbeing of families (e.g. reduced amount of medical clinic and doctor visits)
- Metrics to be considered: customer satisfaction and loyalty, advocacy (e.g. Net Promoter Score), service utilization, number of transactions and average transaction time, number of search inquiries, number and type of contacts in the city customer service (calls, emails, chats), average time saved by the customer, level of personal & family wellbeing (detailed metrics to be defined along with the detailed design of the service and the business model)

Figure 34: The Service Logic Business Model Canvas for the Family Wellbeing Service Concept.

5 Conclusions and Evaluation of the Design Process

The purpose of this thesis was to design a digital wellbeing service concept for families with 0-12 years old children through human-centred design. The objective was to develop a holistic concept taking both the physical and mental wellbeing into consideration. Perheentuki service, which is a digital service channel currently offered by the City of Helsinki to the families with children, and focusing on digitalizing social and healthcare related content and services, was used as a case example. Therefore, the aim of this thesis was to elaborate and develop ways for the City of Helsinki to improve the experience of the Perheentuki customers through deep understanding of the families' needs, motivations, goals and behaviour from the broad wellbeing perspective, taking the driving forces of the social and technological trends into consideration as well as the opportunities provided by weak authentication methods (e.g. Facebook, Twitter and Google) in enabling more personalized customer experience. Examination of the research topic from these perspectives was expected to provide a wider set of opportunities and freedom in designing the service, compared to focusing purely on social and healthcare services, which are highly regulated by the Finnish law and require the use of strong customer authentication for ensuring the secure handling and privacy of personal healthcare data.

Thus, the following research objectives were set for this thesis:

- Examine human-centred design approaches, process and methods in the public sector
- Design a comprehensive digital wellbeing service concept for families enabling a personalized and improved customer experience
- Identify concrete service ideas for developing and improving the wellbeing of families
- Define the opportunities and benefits of weak authentication methods in enabling personalized customer experience

This thesis is part of and contributing to a larger WeLive research project, which is an H2020 funded project addressing ICT-enabled open government and developing a new concept of public administration based on citizen co-created mobile urban services.

In Chapter 1, the broader phenomena related to the increasing dominance of the service sector and service driven markets providing context for open innovation, incorporating a wider range of various stakeholders within service design both in the public and the private sector was discussed. As stated by e.g. Edwards et al. (2015, 76) and Ojasalo et al. (2015, 196), the service innovation will inherently be combined with complex social issues and the service-dominant logic (SDL), in which the service experienced by the customer forms the fundamental basis of the new business logic. Thus, the service innovation will benefit from incorporat-

ing different stakeholders, including the customer, into the open innovation processes by utilizing methods and mindset inspired by design thinking (Edwards et al. 2015; Ojasalo et al. 2015).

The proliferation and steady integration of new technologies into the daily lives of businesses, governments and citizens fostering new forms of public engagement was discussed. The overlapping relationships across public, private and social sectors foster a new digital governance environment. It was also stated that even though the Finnish cities, such as Helsinki, have integrated human-centred and customer-driven orientation into their strategies, it is not a common practice of local authorities to design and co-create services with the citizens (Jäppinen 2015). Most e-government designs are still dominated by the top-down model with a limited capacity of knowing the preferences of a single customer and providing value-added services according to e.g. Hui & Hayllar (2010, 127-128) and Saad-Sulonen (2014, 18-21). The citizen participation has mainly been applied from a city-centred and consultation based point of view, and the attempts for utilizing e.g. social media in this context has remained superficial. Furthermore, Jung and Padman (2015, 297-303) argue that there are also untapped opportunities provided by the disruptive models of healthcare delivery leveraging latest technology, and the information and communication platforms in novel ways, transforming the healthcare industry through e.g. the utilization of digital service channels for informing, engaging and empowering the customer in shared decision making and enabling more personalized service, and through increased customer experience, higher availability and more efficient allocation or resources.

The structure of the thesis, theoretical foundation grounded in the service marketing and management, applying human-centred design approaches, i.e. service design, design thinking, goal-directed design and futures thinking was introduced in Chapter 1. The key concepts i.e. e-services and e-government, wellbeing services, citizen as the customer and the user of the service, co-creation of customer experience, service concept, authentication, open data and mydata, were also presented.

Existing theories related to the paradigm shift from the goods-dominant logic (GDL) to service-dominant logic (SDL) was discussed in Chapter 2. In addition, the SDL, service innovation and the citizen participation in the public sector were examined. Criticism has been presented e.g. by Osborne et al. (2013) and Radnor et al. (2014) that the prevailing management theory focusing on intraorganizational processes is no longer appropriate for the development and the delivery of public services, rather an interorganizational approach is needed. Osborne et al. (2013) and Radnor et al. (2014) state that SDL theory is more relevant to the public services as the relationships between the customers and the public service organizations are not

transactional in nature. Instead, public services such as social and healthcare are services rather than concrete products. According to Osborne et al. (2013) influencing and understanding the customer's service expectations is crucial to their experience and satisfaction with the service, fundamentally affecting the effectiveness and impact of the service. A central element of the SDL is the co-creation of services seeking to identify the tacit knowledge and needs to design new or improve existing services, which is crucial and relevant also for the public services development. The technological development, the proliferation of e-services and digital governance have the potential of enabling genuine customer involvement and the design of meaningful services. However, digital services pose new challenges related to e.g. trust and privacy (Osborne et al. 2013, 150).

The human-centred design approach, i.e. service design and design thinking, goal-directed design and futures thinking, utilized in this thesis was presented and discussed in detail in Chapter 3. The definition, principles, and processes for these approaches were described. Service design, as defined by Curedale (2013b, 14-17), is a human-centric approach seeking to uncover the unmet or even latent needs with innovative solutions, potentially providing differentiated, unique and competitive advantage for the organization. The aim of service design is to find an optimal balance between business needs, technology, people and context in which the service takes place. Stickdorn and Schneider (2011, 28-34) describe service design as an interdisciplinary and evolving approach combining various tools and methods from different fields as well as a way of thinking incorporating five core principles: user-centred, co-creative, sequencing, evidencing and holistic.

Design thinking is another approach very closely related to and an integral part of service design, enabling the creation of concepts, solutions, and future service experiences that are usable and desirable for users, and efficient and distinctive for the service providers (Miettinen & Kuure 2013, 30). Design thinking provides a framework for utilizing an iterative process with diverging and converging stages with collaborative tools and methods combining analytical and creative thinking. Empathy is fundamental and the most important feature of design thinking. Everything begins by thinking about the people, gaining insights, understanding the customers' practices, interactions, contexts, needs, emotions and hidden motives as well as identifying the problem that the customers are experiencing (Brown 2008, 86; Brown 2009, 16-19; Lockwood 2009, xi-xv; Tschimmel 2012, 4; Curedale 2013a, 13-31; Curedale 2013b, 28-30; Ojasalo et al. 2015, 197-198).

The goal-directed design process provides a comprehensive framework for developing human-centred products and services especially in the digital age by focusing on achieving the objectives of the different stakeholders, and especially the customer's goals which can be divided

into life goals, end goals and experience goals (Goodwin, 2009). The purpose of the goal-directed design framework according to Goodwin (2009) is to provide a framework for creating great solutions instead of offering a strict set of rules and constraints. The framework combines four components: principles, patterns, practices and process.

Futures thinking provides a general approach for looking into possible futures, drawing on methods from several approaches for discovering, examining, evaluating and proposing probable, possible, alternative and preferable futures. In addition, it provides the opportunity for an organization to actively shape the direction of the future. Creativity and critical thinking are required in futures thinking for breaking the boundaries and reframing the problem as well as for careful analysis of the information, insights and evidence related to the political, economic, social, technological and economic changes in the business environment. (Hiltunen 2013; Ojasalo et al. 2015, 196-197.)

The empirical research carried out in this thesis project, utilizing a combination of the Double Diamond and goal-directed design processes was presented in Chapter 4. All the tools and methods used in the design process were discussed from both theoretical and practical perspective. The design process was divided into three stages: discover, define and develop according to the Double Diamond model. The Double Diamond process normally includes a fourth stage, the deliver phase, including the detailed design of the solution, prototyping and final testing as well as the concrete implementation and launching of the service. The deliver stage was not in the scope of this thesis.

The objective of the discover stage was to gather insights and empirical data to gain deep understanding about the customer needs, behaviour, and the service context as well as the current situation and objectives from the City of Helsinki point of view to define the design problem. The insights and information were gathered using the following methods: expert interviews, desk research, online survey, design probes and contextual interviews.

The online survey was conducted aiming to collect both quantitative and qualitative information about the customer behaviour and needs related to social and healthcare issues within the families. Design probes and contextual interviews of the families were used to gather qualitative customer insights. The design probes emphasize the customer's active role in recording the information about their daily lives including social, aesthetic, needs, feelings, values, attitudes and cultural environment. The design probes are based on user participation via self-documentation from the customer's personal context and point of view (Mattelmäki 2008, 40; Holmlid et al. 2015, 552; Ojasalo et al. 2015, 200).

In this thesis, the design probes were based on self-documentation utilizing a diary and camera study, enabling a comprehensive collection of data during a prolonged period and from holistic wellbeing perspective. This provided more credible and reliable understanding of the families compared to e.g. observing the families in one particular situation. The aim of the design probes was to gather deep insights about the daily lives of the families related to their wellbeing, challenges, motivations, joys, information searching behaviour as well as their dreams. The probes diary was designed so that it enabled the entire family to record their experiences and thoughts together. The length of the design probes study was one week, and there was a total of seven families participating.

According to Mattelmäki (2008) and Holmlid et al. (2015) the design probes can be used for gathering insights as such, but it may also be useful to extend, supplement and revise the information collected in the probes via interviews. For this thesis project, a combination of an individual and contextual interview was found most appropriate. Contextual interviews are conducted with customers in their own environment or context in which the service process is normally taking place. Therefore, after the design probes study, all the families were interviewed by the researcher.

An extensive amount of data was collected during the discover phase, i.e. the online survey material, design probes diary entries and photographs, customer and expert interview recordings and transcriptions. The online survey proved to be an efficient tool for gathering especially quantitative data about e.g. the customer preferences, channels for finding wellbeing related information, most interesting topics, frequency of information search and content type. The aim of the online survey was to gather also qualitative customer information with open-ended questions and text fields enabling the participant to write freely, which was achieved only to certain extent. In many cases, the respondents left the fields open or provided very short and concise answers not revealing reasons and motivations of the customers. Thus, the online survey was found effective for gathering information about the *what* and the *how* perspective.

However, the design probes combined with the contextual interviews were found extremely useful and effective methods in gaining qualitative information and deep understanding about the families' wellbeing, and especially providing insights about the families' behaviour, motivations, and drivers, i.e. providing answers to the question of *why*, which is extremely important from the service design perspective. In addition, the fact that most of the families filled in the probes diary and documented their lives together, enabled the researcher to gather truly holistic information about the families as a whole, compared to the usual setting with the design probes, in which the participant records his/her life from his/her own perspective.

The next stage in the design process was the define phase, which focused on modelling, understanding and translating the data collected into insights and further into personas and design drivers. Tools e.g. open and selective coding, as well as affinity mapping, were used to make sense of the data. The key insights were divided into three groups: i) the overall wellbeing of families including hobbies and interests, dreams, foundations for wellbeing as well as challenges and worries; ii) searching for wellbeing information, i.e. challenges with finding the information as well as motivations for utilizing the current channels for information search and preferred format of content; and iii) registration with weak authentication methods as well as elements of an ideal digital wellbeing solution.

All the families were fairly or very active regarding various hobbies and interests related to physical and mental wellbeing, creativity and personal development, culture, entertainment, innovation and future technology. The foundations of wellbeing consisted of elements related to self-actualization, work-life balance, love and belonging, safety and physiological aspects, e.g. healthy food and adequate sleep. The wellbeing challenges and worries related to health issues within the family (e.g. a serious illness of child or spouse), children's development and behaviour, mental wellbeing and fatigue, communication and information sharing within family and/or with different stakeholders, healthy diet and nutrition and time management of the whole family (e.g. making the right choices regarding the time usage versus the wellbeing of the family).

The main challenges in searching wellbeing information related to the enormous amount, fragmentation, and inconsistency of the information, the difficulties in finding reliable and relevant information and evaluating the credibility of the information source. The formal, impersonal and distant style of providing wellbeing related information especially by the public sector services and the cumbersome process in the city e-services were found frustrating. Different types of digital and physical channels were considered to have their benefits depending on the context, i.e. face to face discussion with e.g. a nurse was found appropriate when dealing with complex issues such as treatment recommendations. Chat was considered somewhat irritating, intrusive and slow, although it was found useful in e.g. initiating an anonymous discussion about personal or intimate issues, thus lowering the barrier for getting help e.g. in mental wellbeing related issues.

The majority of the families were willing to register to a digital wellbeing service with weak authentication methods, assuming it would provide value for them in the form of e.g. personalized content, simplified information search as well as proactive and context related services. However, the service should also be available without registration, i.e. forcing the customer to register without the possibility to validate the service benefits, was considered a

“show stopper”. The families were all aware of the data privacy risks to a various extent and some of them eager to manage the family’s personal data (MyData). The use of the customer data for statistical purposes or development of new and more personalized services (open data) was found necessary, even essential for creating improved customer experience in the future.

In the define stage, a stakeholder map and key social and technological trends were also identified as well as ideas generated. The key customer insights from the discover phase, the stakeholder map, key trends and the ideas generated supported and contributed to the development and definition of the two personas and the design drivers through an iterative process. Personas were found extremely useful providing an understanding of the customer from a broad wellbeing context, increasing empathy and human perspective in the design process. The design drivers determined what information and capabilities the customer personas require and expect from the service. The following design drivers were identified for the Family Wellbeing Service concept:

- Systemic approach providing holistic and context related services and enabling the customer to communicate, interact and share wellbeing related information within the family and the different stakeholders.
- The anticipation of future situations enabling proactive services taking the family’s life stages into consideration.
- Supporting the families in positive, warm and human manner, offering customer oriented service for both parents and based on the understanding of personal and the family’s common needs.
- Aggregating reliable, relevant and timely content and services based on customer preferences and targeted to the context of the situation
- Offering flexible and intuitive ways of using the service anytime and anywhere, with personalized customer experience based on the authentication level preferred by the customer.

The develop stage of the design process presented the designed concept, the Family Wellbeing Service, through four context scenarios and visualizations with storyboards. The context scenarios are plausible, high level and hypothetical descriptions of an ideal or typical interaction in a particular service context from the persona’s point of view. A storyboard is a cartoon-like series of e.g. images or drawings visualizing e.g. a process of related to a new service. The four contexts scenarios were: registering to the service; the holistic physical and mental wellbeing management, a child getting sick, and holistic family health and nutrition service.

In addition to the context scenarios and storyboards, the concept overview, key features and benefits for different stakeholders were presented along with the preliminary service-logic business model canvas for the concept. As discussed earlier, one of the key insights from this design project was that there is a broad and very complex network of various stakeholders, physical and digital services that the families are forced to interact with related to their well-being. The communication and interaction with each of these stakeholders and finding relevant information require an enormous amount of time and effort from the families. Therefore, one of the main conclusions is that there are huge amount of service innovation opportunities and potential for making the lives easier for the families, saving time and providing value with personalized service offering related to their wellbeing. In addition, digitalization, new technologies (e.g. IoT and AI) and connected databases enable public sector organizations to deliver highly personalized information helping to inform the citizens' personal decisions and making socially beneficial choices (Linders 2012, 448). Linders (2012, 451) further state that the public organizations should seek to take greater advantage of the modern ICT infrastructure, e-government, and the empowered citizens through the adoption of smart governance systems.

The public sector and especially the City of Helsinki could play a central and significant role in driving this change by building a Wellbeing Service Platform for providing personalized and context related wellbeing services enabled by the collaboration of different stakeholders and service providers, i.e. facilitating the cooperation of various stakeholders and the PPP partnerships as also suggested by e.g. Hui and Hayllar (2010) and Hassan et al. (2011) in their research studies. The Wellbeing Service Platform would enable the different stakeholders, e.g. KELA, health centres and pharmacies, daycare and school, private sector service providers and developers, to provide context related services to the customer through a personalize service view. In other words, the Wellbeing Service Platform would enable the city of Helsinki to offer the systemic approach, taking the life future situations into consideration, as well as enabling the interaction and sharing of wellbeing related information within the family and the different stakeholders. Furthermore, the platform would allow the aggregation of reliable, relevant and timely wellbeing content and services based on the customers' preferences. These findings are also supported by the academic literature, as e.g. Linders (2012, 446) state that the new interactive channels have the potential to "rethink traditional boundaries between individuals, the public, communities, and levels of government in ways that dramatically alter how the public and government interact, develop solutions and deliver services."

Based on the results of this thesis, the weak authentication methods are expected to provide valuable and concrete benefits in offering more personalized and increased customer experience for the Perheentuki users, thus filling in the current gap between the "no authentication –level" and "the strong authentication level" used in the city e-services. The features enabled

by registering with weak authentication methods include e.g. multiple device support with personal preferences and settings; multi-profile creation and management; personalized content and recommendations about themes and topics of interest; context based, smart information search; information sharing within family and different stakeholders (excluding detailed level personal health data); history data (e.g. previous appointments, trainings, hobbies, events etc.); booking of training, courses, hobbies and events; virtual assistant/life coach/personal trainer service; and smart time management, reminders and calendar integration.

5.1 Value and Relevancy of the Thesis

This thesis provides both scientific and practical benefits for cities, private sector organizations, developers, research institutions as well as citizens. The thesis contributes to the academic discussion or debate about the service-dominant logic in the public sector, benefiting from incorporating the different stakeholders into the collaborative innovation process by utilizing methods and mindset inspired by human-centred design. Opportunities for the public sector and in particular for the City of Helsinki in driving and facilitating collaboration and the PPP partnerships by building a Wellbeing Service Platform were presented. Furthermore, this thesis contributes to the academic research related to so-called ”One-Stop e-government” model, discussed e.g. by Hassan et al. 2011 (534-535). According to this model, e-government will evolve through different stages ultimately leading to the development of fully integrated e-government initiative, i.e. from cataloguing (sparse online presence with e.g. downloadable forms) to transaction (online services and forms, working databases supporting the online transactions), and towards vertical integration (local systems integrated to higher-level systems within similar functionalities), and finally to horizontal integration (systems integrated across different functions offering a real “one stop shop” for the citizens). The designed Family Wellbeing Service enabled by the service platform facilitated by the City of Helsinki, would offer a concrete wellbeing ”one stop shop” for the citizens.

Furthermore, the thesis extends the knowledge of service innovation, citizen participation in the public sector as well as the utilization of weak authentication methods and open data in enabling the development of personalized and context related wellbeing services. The study also contributes to the human-centred design approaches, processes, and methods in designing public healthcare and wellbeing services. Several tools and methods were examined in this thesis enabling the gathering of profound understanding of the customers’ needs, goals, motivations and behaviour related to the families’ wellbeing. The utilization of the design probes enabling the entire families to participate in the documentation of the family’s daily lives provides scientific novelty. In addition to the extensive amount of customer information, the thesis increases knowledge and understanding of the contextual needs of the customers relate to the families’ wellbeing.

The results of this thesis provide concrete value for the City of Helsinki in developing the Perheentuki service, as well as for other cities and different stakeholders, e.g. private sector service providers and developers, enabling these parties to initiate the development and design of truly meaningful, personal and context related wellbeing services for the customers, thus allowing the public sector to provide services and allocate resources more efficiently where truly needed. Costs can be saved through e.g. the decrease of the customer support contacts as the customers can find the relevant information through the new service instead of calling the customer care. Indirect cost savings can also be achieved in the long-term due to the increased wellbeing of the citizens as the unnecessary doctor visits are expected to fall. Practical value is also generated through the context scenarios defined in this thesis, as e.g. Pascu & van Lieshout (2009, 93) argue that the expectations of anytime and anywhere services enabled by the new technologies is predominant, but less is known how the concrete services would look like.

Finally, this thesis contributes to the WeLive research project, in which Laurea University of Applied Sciences is a member of the project consortium.

5.2 Prospects for Future Research

Even though the objectives of this thesis were met, there are still several areas in need for further research and development due to the broad nature of the concept of wellbeing and complexity of the systemic approach.

As stated, wellbeing is a highly broad topic consisting of e.g. physical and mental wellbeing, nutritional and dietary aspects, and also including the extracurricular activities. This thesis touched upon these themes only on a high-level. Thus, it would be valuable to investigate these subareas in more detail to define the customer journeys, identify the most relevant customer touch points, and developing digital services enabling the superior customer experience in the particular context. The detailed design of e.g. the user interface is also required for implementing the Family Wellbeing Service.

Furthermore, this thesis focused on the wellbeing of the families with 0-12 years old children. Naturally, the digital wellbeing service concept should also be designed for families with children of 13-18 years old. The development of a solution targeted directly to the children should also be considered and studied further, i.e. to understand how children can be taken into consideration in the digital wellbeing service. In the Perheentuki service and in this thesis the primary customer and user of the service is the parent for whom the concept was designed.

One of the key insights of this thesis research was that there should be services designed equally to both parents, i.e. the fathers feel neglected to some degree as the current social and healthcare services focus almost entirely on the wellbeing of the mother and the children. Thus, further research should be carried out for designing the wellbeing services taking the fathers better into consideration.

A more detailed understanding need to be obtained about the concept of ”city as the platform” for providing truly relevant, personal and context related wellbeing services for citizens, i.e. how should the City of Helsinki facilitate the collaboration and innovation between the different stakeholders in practice, what kind of business models are required, how are the partnerships managed, how will the platform be implemented, etc. Further analysis of the stakeholder map defined in this thesis is expected to provide a thorough understanding of the relationships between the different stakeholders, as well as the challenge areas, and the pain points in providing the wellbeing services for the citizens. Profound stakeholder analysis would also enable the identification of organizations that are possibly missing in the current value network, but which could add substantial value in providing future wellbeing services.

Additional research is also required related to the data privacy and management issues in the future wellbeing services. In other words, there needs to be a deeper understanding of what kind of tools, methods and skills are required from the service provider perspective on identifying and analysing the relevant data for developing services providing increasingly personalized experience. In addition, efforts should be put in designing tools and methods for the customers to view and manage their own data, i.e. MyData, as well as the communication aspect, i.e. what kind of communication is needed to mitigate the fears related to the data privacy risks associated with registering and authenticating with weak authentication methods. From the technological perspective, the opportunities enabled by the blockchain technology in data and access management should be studied further as there seems to be a relatively limited amount of academic research available around the possibilities provided by blockchain in healthcare. According to Linn and Koo (2016), the blockchain technology can potentially solve the interoperability challenges related to the current health IT systems, and enable the customers to manage, control and securely share their own data with e.g. healthcare service providers and medical researchers.

Nevertheless, and regardless of the technologies used in authenticating the users, the customer experience needs to be designed so that it enables a seamless journey across the wellbeing services and enabling the customer to smoothly move between the different authentication levels and customer profiles. In other words, one particular customer journey may include touch points in which the customer wants to interact anonymously, requiring e.g. the

use of weak authentication methods, as well as touch points, in which the customer is required to authenticate him/herself using strong methods due to e.g. regulatory requirements. Further understanding is also needed about the regulatory aspects and the definition of the drivers for the City of Helsinki to require customer authentication in different services and contexts.

References

Abdellatif, A., Amor, N.B. & Mellouli, S. 2013. An Intelligent Framework for E-Government Personalized Services. In: Proceedings of the 14th Annual International Conference on Digital Government Research. Quebec City, Canada, 120-126.

Albright, K.S. 2004. Environmental Scanning: Radar for Success. Information Management Journal, May-June, 38(3), 38-45.

Bitner, M.J., Ostrom, A.L. & Morgan, F.N. 2008. Service Blueprinting: A Practical Technique for Service Innovation. California Management Review, 50(3), 66-94.

Brown, T. 2008. Design Thinking. Harvard Business Review, June, 85-92.

Brown, T. 2009. Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation. New York, United States: HarperCollins.

Cho, J.Y. & Lee, E.H. 2014. Reducing Confusion about Grounded Theory and Qualitative Content Analysis: Similarities and Differences. The Qualitative Report, 19 (64).

Cooper, A., Reimann, R., Cronin, D. & Noessel, C. 2014. About Face: The Essentials of Interaction Design. 4th Edition. Indianapolis, United States: John Wiley & Sons, Inc.

Curedale, R. 2013a. Design Thinking: Process and Methods Manual. Topanga, United States: Design Community College Inc.

Curedale, R. 2013b. Service Design: 250 Essential Methods. Topanga, United States. Design Community College Inc.

Edwards, M., Logue, D. & Schweitzer, J. 2015. Towards an Understanding of Open Innovation in Services: Beyond the Firm and Towards Relational Co-creation. In: Agarwal, R., Selen, W., Roos, G. & Green, R. (eds.). The Handbook of Service Innovation. London, United Kingdom: Springer, 75-90.

Gläser, J. & Laudel, G. 2013. Life With and Without Coding: Two Methods for Early-Stage Data Analysis in Qualitative Research Aiming at Causal Explanations. Forum: Qualitative Social Research, 14(2), 1-38.

Goodwin, K. 2009. Designing for the Digital Age: How to Create Human-Centered Products and Services. Indianapolis, Indiana: Wiley Publishing, Inc.

Gray, D., Brown, S. & Macanufo, J. 2010. Gamestorming: A Playbook for Innovators, Rulebreakers, and Changemakers. 1st Edition. Sebastopol, United States: O'Reilly Media, Inc.

Hassan, H.S., Shehab, J. & Peppard, J. 2011. Recent Advances in E-Service in the Public Sector: State-of-the-Art and Future Trends. Business Process Management Journal, 17(3), 526-545.

Hiltunen, E. 2013. Foresight and Innovation: How Companies Are Coping with the Future. London, United Kingdom: Palgrave Macmillan.

Holmlid, S., Mattelmäki, T., Visser, F.S. & Vaajakallio, K. 2015. Co-creative Practices in Service Innovation. In: Agarwal, R., Selen, W., Roos, G. & Green, R. (eds.). The Handbook of Service Innovation. London, United Kingdom: Springer, 545-574.

Hu, G., Pan, W., Lu, M. & Wang, J. 2009. The Widely Shared Definition of E-Government: An Exploratory Study. The Electronic Library, 27(6), 968-985.

Hui, G. & Hayllar, M.R. 2010. Creating Public Value in E-Government: A Public-Private-Citizen Collaboration Framework in Web 2.0. The Australian Journal of Public Administration, 69(1), 120-131.

Jansen, H. 2010. The Logic of Qualitative Survey Research and its Position in the Field of Social Research Methods. Forum: Qualitative Social Research, 11(2), Article 11.

Jung, C. & Padman, R. 2015. Disruptive Digital Innovation in Healthcare Delivery: The Case for Patient Portals and Online Clinical Consultations. In: Agarwal, R., Selen, W., Roos, G. & Green, R. (eds.). The Handbook of Service Innovation. London, United Kingdom: Springer, 297-318.

Jäppinen, T. 2015. How to Manage a Service Innovation Process in the Public Sector: From Co-Design to Co-Production. In: Agarwal, R., Selen, W., Roos, G. & Green, R. (eds.). The Handbook of Service Innovation. London, United Kingdom: Springer, 297-318.

Lesley, A. 2012. Designing & Doing Survey Research. Thousand Oaks, United States: SAGE Publications Ltd.

Liedtka, J. & Ogilvie, T. 2011. Designing for Growth: A Design Thinking Tool Kit for Managers. New York, United States: Columbia University Press.

Linders, D. 2012. From E-Government to We-Government: Defining a Typology for Citizen Coproduction in the Age of Social Media: Government Information Quarterly, 29, 446-454.

Lockwood, T. (eds.) 2009. Design Thinking, Integrating Innovation, Customer Experience, and Brand Value. New York, United States: Allworth Press.

Lusch, R.F. & Vargo, S.L. 2014. Service-Dominant Logic: Premises, Perspectives, Possibilities. Cambridge, United Kingdom: Cambridge University Press.

Lüftenegger, E.R. 2014. Service-Dominant Business Design. Doctoral Dissertation. Proefschiftsmaken, Netherlands: Eindhoven University of Technology.

Lüftenegger, E., Grefen, P., & Weisleder, C. 2012. The Service Dominant Strategy Canvas: Defining and Visualizing a Service-Dominant Strategy Through the Traditional Strategic Lens. Eindhoven, Netherlands: Eindhoven University of Technology.

Mattelmäki, T. 2008. Design probes. 2nd Edition. Helsinki, Finland: University of Art and Design.

Meyer Goldstein, S., Johnston, R., Duffy, J. & Rao, J. 2002. The Service Concept: The Missing Link in Service Design Research: Journal of Operations Management, 20, 121-134.

Miettinen, S. & Kuure, E. 2013. Designing a Multi-Channel Service Experience. Design Management Review, 24(3), 30–37.

Moritz, S. 2005. Service Design: Practical Access to an Evolving Field: Koln International School of Design.

Ojasalo, K. 2010. The Shift from Co-Production in Services to Value Co-Creation: The Business Review, 16, 171-177.

Ojasalo, K., Moilanen, T. & Ritalahti, J. 2010. Kehittämistyön Menetelmät: Uudenlaista osaamista liiketoimintaan. Helsinki, Finland: WSOYPro.

Ojasalo, K. & Ojasalo, J. 2014. Adapting Business Model Thinking to Service Logic: An Empirical Study on Developing a Service Design Tool. In: Viitanen, J. & von Koskull, C. (eds.) The

Nordic School – Alternative Perspectives on Marketing and Service Management. Helsinki, Finland: Publications of Hanken School of Economics.

Ojasalo, K., Koskelo, M. & Nousiainen, A. 2015. Foresight and Service Design Boosting Dynamic Capabilities in Service Innovation. In: Agarwa, R., Selen, W., Roos, G. & Green, R. (eds.). The Handbook of Service Innovation. London, United Kingdom: Springer, 193-212.

Osborne, S.P., Radnor, Z. & Nasi, G. 2013. A New Theory for Public Service Management: Toward A (Public) Service-Dominant Approach: American Review of Public Administration, 43(2), 135-158.

Pascu, C. & van Lieshout, M. 2009. User-led, Citizen Innovation at the Interface of Services: Emerald Group Publishing Limited, 11(6), 82-96.

Polaine, A., Lövlie, L. & Reason, B. 2013. Service Design: From Insight to Implementation. New York, United States: Rosenfeld Media, LLC.

Portigal, S. 2013. Interviewing Users: How to Uncover Compelling Insights. New York, United States: Rosenfield Media.

Prahalad, C.K. & Ramaswamy, V. 2004a. Co-Creation of Experiences: The Next Practice in Value Creation: Journal of Interactive Marketing, 18(3).

Prahalad, C.K. & Ramaswamy, V. 2004b. Co-Creating Unique Value with Customers: Strategy and leadership, 32(3), 4-9.

Prahalad, C.K. & Ramaswamy, V. 2004c. The Future of Competition: Co-Creating Unique Value with Customers. Boston, United States: Harvard Business School Publishing.

Radnor, Z., Osborne, S.P., Kinder, T. & Mutton, J. 2012. Operationalizing Co-Production in Public Services Delivery: Public Management Review, 16(3), 402-423.

Randhawa, K. & Scerri, M. 2015. Service Innovation: A Review of the Literature. In: Agarwal, R., Selen, W., Roos, G. & Green, R. (eds.). The Handbook of Service Innovation. London, United Kingdom: Springer, 27-51.

Raymond, M. 2010. The Trend Forecaster's Handbook. London, United Kingdom: Laurence King Publishing Ltd.

Rea, L.M. & Parker, R.A. 2005. Designing & Conducting Survey Research: A Comprehensive Guide. 3rd Edition. San Francisco, United States: John Wiley & Sons, Inc.

Saad-Sulonen, J. 2014. Combining Participations: Expanding The Locus of Participatory E-Planning by Combining Participatory Approaches in The Design of Digital Technology and in Urban Planning. Doctoral Dissertation. Helsinki, Finland: Aalto University School of Arts, Design and Architecture.

Sillanpää, V. 2011. Performance Measurement in Welfare Services: A Survey of Finnish Organizations: Measuring Business Excellence, 15(4), 62-70.

Stickdorn, M. & Schneider, J. (eds.) 2011. This is Service Design Thinking: Basics – Tools – Cases. Amsterdam, Netherlands: BIS Publishers.

Strauss, A & Corbin, J. 2008. Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory. 2nd Edition. Thousand Oaks, United States: SAGE Publications, Inc.

Teixera, J., Patricio, L., Nunes, N.J., Nóbrega, L. & Raymond, P. 2012. Customer Experience Modeling: From Customer Experience to Service Design: Journal of Service Management, 23(3), 362-376.

Trischler, J. & Scott, D.R. 2016. Designing Public Services: The Usefulness of Three Service Design Methods for Identifying User Experiences: Public Management Review, 18(5), 718-739.

Tschimmel, K. (2012). Design Thinking as an Effective Toolkit for Innovation. In: Proceedings of the XXIII ISPIM Conference: Action for Innovation: Innovating from Experience. Barcelona, Spain, 1-20.

Van Velsen, L., van der Geest, T., ter Hedde, M. & Derks, W. 2009. Requirements Engineering for E-Government Services: A Citizen-Centric Approach and Case Study: Government Information Quarterly, 26, 477-486.

Zeithaml, V. A., Bitner, M. J. & Gremler, D. D. 2013. 6th Edition. Services Marketing: Integrating Customer Focus Across the Firm. New York, United States: McGraw-Hill.

Electronic references

Apotti. 2016. Accessed 25.10.2016.
http://www.apotti.fi/en/what-is-apotti/

European Union Agency for Network and Information Security. 2016. Accessed 25.10.2016.
https://www.enisa.europa.eu/topics/national-csirt-network/glossary/authentication-methods

Finlex. 2007. Laki sosiaali- ja terveydenhuollon asiakastietojen sähköisestä käsittelystä. Accessed 25.10.2016.
http://www.finlex.fi/fi/laki/ajantasa/2007/20070159

Finlex. 2016. Laki vahvasta sähköisestä tunnistamisesta ja sähköisistä allekirjoituksista annetun lain muuttamisesta. Accessed 25.10.2016.
http://www.finlex.fi/fi/laki/alkup/2016/20160533

Finnish Communications Regulatory Authority. 2016. Accessed 25.10.2016.
https://www.viestintavirasto.fi/kyberturvallisuus/sahkoinentunnistaminenjaallekirjoitus.html

Finnish Government. 2015. Strategic Programme of Prime Minister Juha Sipilä's Government. Accessed 25.10.2016. http://valtioneuvosto.fi/documents/10184/1427398/Ratkaisujen+Suomi_EN_YHDISTETTY_netti.pdf/8d2e1a66-e24a-4073-8303-ee3127fbfcac

Finnish Government. 2016. Accessed 25.10.2016.
http://valtioneuvosto.fi/hankkeet

Futures Center. 2016. Accessed 12.10.2016.
www.thefuturescentre.org

Helsinki Region Infoshare. 2016. Accessed 25.10.2016.
www.hri.fi

Institute for The Future. 2016. Accessed 12.10.2016.
www.iftf.org

Julkisen Hallinnon Tietohallinnon Neuvottelukunta. 2016. JHS 164 Tunnistautuminen ja maksaminen sähköisessä asioinnissa VETUMA-palvelun avulla. Accessed 25.10.2016. http://docs.jhs-suositukset.fi/jhs-suositukset/JHS164/JHS164.pdf

Linn, L.A. & Koo, M.B. 2016. Blockchain for Health Data and Its Potential Use in Health IT and Health Care Related Research. Accessed 8.11.2016. https://www.healthit.gov/sites/default/files/11-74-ablockchainforhealthcare.pdf

Ministry of Finance. 2016. Accessed 25.10.2016. http://vm.fi/palveluarkkitehtuuri

Ministry of Social Affairs and Health. 2016. Accessed 25.10.2016. http://stm.fi/hankkeet

Organization for Economic Co-operation and Development, 2013. Draft OECD Principles on Digital Government Strategies: Bringing Governments Closer to Citizens and Businesses. Accessed 25.10.2016. http://www.oecd.org/governance/eleaders/Draft-OECD-Principles-for-Digital-Government-Strategies.pdf

Perheentuki. 2015. Accessed 26.10.2016. http://www.slideshare.net/Perheentuki/perheentukihankkeen-esittely-sislttypaja-i-080415

Poikola, A., Kuikkaniemi, K. & Kuittinen, O. 2016. My Data: Johdatus ihmiskeskeiseen henkilötiedon hyödyntämiseen. Open Knowledge Finland & Ministry of Transport and Communication. Accessed 25.10.2016. https://www.lvm.fi/documents/20181/797583/My+data+-+johdatus+ihmiskeskeiseen+henkilotiedon+hyodyntamiseen/3ef008af-f453-4a33-a8db-74095e9419ee?version=1.0

Sitra. 2016. Accessed 12.10.2016. http://www.sitra.fi/tulevaisuus/megatrendit

Trendone. 2016. Accessed 12.10.2016. http://www.trendone.com/en/trend-universe/mega-trends.html

Trendwatching. 2016. Accessed 12.10.2016. www.trendwatching.com

WeLive. 2016. Accessed 27.10.2016. http://www.welive.eu/

World Economic Forum. 2016. Top 10 Emerging Technologies of 2016. Accessed 12.10.2016. http://www3.weforum.org/docs/GAC16_Top10_Emerging_Technologies_2016_report.pdf

Figures

Tables

Appendices

Appendix 1: Example of an expert interview guide

1. **Opinnäytetyön ja tutkimuksen tavoitteet**

2. **Taustatiedot**
   - Kerrotko tarkemmin roolistasi Helsingin kaupungilla?
   - Kerrotko taustaa kaupungin tarjoamaan Perheentuki –palveluun?
   - Minkälaisia tavoitteita kaupungilla on Perheentuki –palveluun liittyen?

3. **Perheentuki -palvelun kehitys ja käyttäjätarpeet**
   - Miten Perheentuki –palvelua on kehitetty? Minkälaisia tavoitteita/rajoitteita/haasteita kehittämisellä on ollut?
   - Miten ja minkä tahojen kanssa kehitysprojektit toteutettiin? Miten projektit onnistuivat? Mitkä olivat keskeiset oppimiskohdat?
   - Minkälaisia käyttäjätarpeita kehitysprojekteissa tuli esiin?
   - Mitkä ovat olleet käyttäjien suurimmat haasteet Perheentuki –palvelun käytössä? Miksi?

4. **Kevyt tunnistus ja personoitu palvelunäkymä**
   - Mitä hyötyä kevyen tunnistuksen kautta mahdollistettu personoitu palvelunäkymä toisi käyttäjälle? Entä kaupungille?
   - Minkälaisissa palveluissa kevyestä tunnistuksesta olisi erityisesti hyötyä? Miksi?
   - Minkälaisia haasteita kevyen tunnistuksen hyödyntämiseen mielestäsi liittyy?

5. **Kumppanit**
   - Minkälaista yhteistyötä teette kumppanien kanssa (esim. MLL, Väestöliitto tms.)?
   - Minkälaisena näet kumppaniyhteistyön tulevaisuudessa?

6. **Perheentuki palvelun tulevaisuus**
   - Minkälainen visio teillä on Perheentuki –palvelun osalta? Minkälaisena näet palvelun 5 vuoden kuluttua?
   - Jos kaikki olisi mahdollista, miten kehittäisit Perheentuki -palvelua? Miksi?

7. **Muuta**
   - Tuleeko sinulle mieleen jotain muuta, mitä haluaisit lisätä?

Appendix 2: Online survey form and questions

Tutkimus perheille ja odottaville vanhemmille suunnatun, personoidun digitaalisen hyvinvointipalvelun kehittämiseksi

Tervetuloa!

Kysely on osa Laurean Service Innovation & Design YAMK koulutusohjelman opinnäytetyötä, jonka tavoitteena on suunnitella personoitu hyvinvointipalvelu Helsingin kaupungin tarjoaman Perheentuki -sivuston (www.hel.fi/perheentuki) ja asiakaskokemuksen kehittämiseksi.

Kyselytutkimuksen tavoitteena on kerätä arvokasta tietoa
- kaupunkilaisten tarpeista, käyttötottumuksista ja haasteista liittyen sähköisiin, lapsiperheille suunnattuihin sosiaali- ja terveydenhuollon tiedonhakupalveluihin.
- kaupunkilaisten tarpeista liittyen personoituun hyvinvointipalveluun sekä kevyen tunnistautumisen menetelmiin.

Vastaukset käsitellään luottamuksellisina. Kyselyyn vastaaminen vie n. 15-30 minuuttia. Kyselyyn voi vastata 10.-31.5.2016 välisen ajan.

Kiitos jo etukäteen!

Terveisin,

Susanna Turunen
(susanna.turunen@student.laurea.fi)

*Pakollinen

Taustatiedot

Taustatietoja käytetään vastausten tilastointiin.

1. Vastaajan sukupuoli *

Merkitse vain yksi soikio.

- ◯ Nainen
- ◯ Mies

2. Vastaajan ikä *

Merkitse vain yksi soikio.

- ◯ 18-20
- ◯ 21-30
- ◯ 31-40
- ◯ 41-50
- ◯ 51-

3. Perheen koko *

Merkitse vain yksi soikio.

- ◯ 2 henkilöä
- ◯ 3 henkilöä
- ◯ 4 henkilöä
- ◯ 5 henkilöä
- ◯ 6 henkilöä
- ◯ Yli 6 henkilöä

4. Minkä ikäisiä lapsia perheeseesi kuuluu? (Syötä iät alla olevaan kenttään pilkulla erotettuna)

.....

5. Asuinkunta *

.....

Tiedonhaun tarpeet ja kiinnostuksen kohteet

6. Miten kiinnostavina pidät alla listattuja aiheita? *

Merkitse vain yksi soikio riviä kohden.

	Ei lainkaan kiinnostava	Jonkin verran kiinnostava	Erittäin kiinnostava	En osaa sanoa
Raskaus	◯	◯	◯	◯
Odotusaika ja seksi	◯	◯	◯	◯
Lantionpohjan lihasten harjoittaminen	◯	◯	◯	◯
Keskenmeno	◯	◯	◯	◯
Synnytys	◯	◯	◯	◯
Vauvan hoito ja tarvikkeet	◯	◯	◯	◯
Vauvan uni ja unipulmat	◯	◯	◯	◯
Imetys	◯	◯	◯	◯
Vauvan itku	◯	◯	◯	◯
Lapsen terveys	◯	◯	◯	◯
Lapsen kehitys	◯	◯	◯	◯
Erityislapset	◯	◯	◯	◯
Päivähoito	◯	◯	◯	◯
Koulun aloitus	◯	◯	◯	◯
Koulukiusaaminen	◯	◯	◯	◯
Teini-ikä	◯	◯	◯	◯
Lasten ja nuorten internetin / sosiaalisen median käyttö	◯	◯	◯	◯
Lasten / nuorten harrastukset	◯	◯	◯	◯
Nuoret ja päihteiden käyttö	◯	◯	◯	◯
Vanhemmuus ja kasvatus	◯	◯	◯	◯
Yksinhuoltajuus	◯	◯	◯	◯
Sateenkaariperheet	◯	◯	◯	◯
Uusioperheet	◯	◯	◯	◯
Parisuhde	◯	◯	◯	◯
Pari-/perheterapia	◯	◯	◯	◯
Kriisi perheessä	◯	◯	◯	◯
Adoptio	◯	◯	◯	◯
Neuvolapalvelut	◯	◯	◯	◯
Verkostot ja tukipalvelut	◯	◯	◯	◯
Ruokavalio ja painonhallinta	◯	◯	◯	◯

7. Mistä muista perheesi hyvinvointiin liittyvistä aiheista olet kiinnostunut?

.....

.....

.....

.....

Tiedon haun kanavat, käyttötottumukset ja sisällön muoto

8. Mistä haet tietoa perheesi hyvinvointiin liittyen? (Valitse kaikki sopivat vaihtoehdot) *

Valitse kaikki sopivat vaihtoehdot.

- [ ] Perhepalvelusivustot (esim. MLL)
- [ ] Keskustelupalstat (esim. Vauva.info)
- [ ] Sosiaalisen median kanavat
- [ ] Neuvola
- [ ] Kirjat ja oppaat
- [ ] Muualta (täsmennä seuraavassa kohdassa)

Mistä muualta etsit tietoa?

.....

.....

.....

.....

.....

9. Miksi käytät juuri näitä (kohdassa 8 listattuja) kanavia tiedon hakuun? *

.....

.....

.....

.....

.....

10. Miten usein etsit perheesi hyvinvointiin liittyvää tietoa? *

Merkitse vain yksi soikio.

- ◯ Päivittäin
- ◯ Viikottain
- ◯ Kuukausittain
- ◯ Muutaman kerran vuodessa
- ◯ Harvemmin kuin kerran vuodessa
- ◯ En koskaan

11. Millä päätelaitteilla etsit tietoa internetistä? (Valitse kaikki sopivat vaihtoehdot) *

Valitse kaikki sopivat vaihtoehdot.

- [ ] Tietokone / kannettava
- [ ] Tablet -tietokone (esim. iPad)
- [ ] Kännykkä
- [ ] Äly-TV
- [ ] En etsi tietoa internetistä

12. Missä muodossa haluaisit mieluiten tietoa etsimistäsi teemoista? (Valitse kaikki sopivat vaihtoehdot) *

Valitse kaikki sopivat vaihtoehdot.

- [ ] Artikkelit
- [ ] Keskusteluryhmät netissä
- [ ] Chat -palvelu
- [ ] Puhelinneuvonta
- [ ] Tapaaminen asiantuntijan kanssa (Esim. neuvolan hoitaja)
- [ ] Videot
- [ ] Nettiluennot
- [ ] Tietoiskut ja koulutustilaisuudet
- [ ] Vertaistukiryhmät
- [ ] Muu, mikä? (Täsmennä seuraavassa kohdassa)

Listaa muut muodot, joissa haluaisit tietoa:

.....

.....

.....

.....

.....

Haasteet tiedot etsinnässä & Uudet palveluideat

13. Minkälaisia haasteita olet kokenut tiedon etsimisessä?

14. Tuleeko sinulle mieleen uusia, perheille suunnattuja, hyvinvointiin liittyviä palveluideoita? (Kerro lyhyesti omin sanoin)

Tunnistautuminen ja personoitu palvelunäkymä

15. Olisitko halukas rekisteröitymään ja kirjautumaan perheille suunnattuun hyvinvointipalveluun (esim. Facebook tunnuksillasi tai sähköpostiosoitteellasi) saadaksesi sinulle kohdennetun palvelunäkymän sisältäen itseäsi kiinnostavaa tietoa? *

Merkitse vain yksi soikio.

- ◯ Kyllä
- ◯ Ei
- ◯ En tiedä

Perustele vastauksesi:

16. Tuleeko sinulle mieleen esimerkkejä erinomaisista digitaalisista palveluista? Miksi palvelu on mielestäsi hyvä?

17. Minkälainen olisi unelmiesi hyvinvointipalvelu? (Kuvaile lyhyesti omin sanoin)

Haluatko vaikuttaa syvällisemmin uuden, digitaalisen hyvinvointipalvelun kehittämiseen? Ilmoittaudu muotoiluluotain -tutkimukseen!

Olisitko sinä tai perheesi halukas osallistumaan kesäkuun alkupuolella toteutettavaan muotoiluluotain -tutkimukseen? Osallistumalla pääset vaikuttamaan syvällisemmin uuden hyvinvointikanavan kehittämiseen. Tutkimus kestää 1 viikon, jonka aikana osallistujat dokumentoivat omaa elämäänsä päiväkirjan muodossa. Päivittäisten tehtävien tekeminen on helppoa ja ne voi tehdä yhdessä vaikka koko perheen kesken. Muotoiluluotain -tutkimukseen kuuluu myös haastattelu, jossa perheen dokumentoimia asioita voidaan käsitellä tarkemmin.

Saat sähköpostilla lisätietoa tutkimuksesta sekä tarkemmat ohjeet tutkimukseen osallistumisesta.

Ilmoittautuminen muotoiluluotain -tutkimukseen

Valitse kaikki sopivat vaihtoehdot.

☐ Minuun saa olla yhteydessä muotoiluluotain tutkimukseen liittyen

Sähköpostiosoitteeni:

Kiitos osallistumisestasi!

Muistathan lähettää vastauksesi klikkaamalla Lataa -painiketta!

Appendix 3: The design probes diary with instructions.

Hei, ja Tervetuloa!

Kiitos, että osallistut tutkimukseen!

Tutkimus on osa Laurean Service Innovation & Design YAMK koulutusohjelman opinnäytetyötäni, jonka tavoitteena on kehittää uudenlainen, digitaalinen hyvinvointipalvelu odottaville vanhemmille sekä lapsiperheille.

Tästä kansiosta löydät tarkemmat ohjeet tutkimukseen osallistumiseen sekä päivittäiset tehtävät. Tutkimus kestää 1 viikon, jonka aikana toivon, että dokumentoit päivittäisiä kokemuksianne. Kun olet valmis, lähetä päiväkirja tehtävineen takaisin kansion mukana tulleessa palautuskuoressa. Muita tarvikkeita (kansio, tussit ja magneetti) ei tarvitse palauttaa.

Tutkimukseen kuuluu myös haastattelu. Olen sinuun yhteydessä ajankohdan sopimiseksi.

Kaikki tutkimuksessa kerätty aineisto käsitellään luottamuksellisena.

Olethan yhteydessä mikäli jokin on epäselvää tai tarvitset lisäohjeita päivittäisten tehtävien tekemiseen.

Kiitos vielä avustasi! Antoisaa viikkoa!

Susanna Turunen
m. 0504488003
e. susanna.turunen@student.laurea.fi

1. Ohje: Päiväkirja

Tämä vihko toimii perheenne päiväkirjana seuraavan viikon ajan. Tarkoitus on, että dokumentoitte perheenne elämää, arkea, haasteita, iloja, onnistumisia, haaveita, jne.

Tehtävien tekeminen vaatii hieman paneutumista, mutta niitä ei kannata kuitenkaan ottaa liian vakavasti. Toivon, että suhtaudutte tutkimukseen leikkimielellä ja kirjaatte mitättömiltäkin tuntuvat asiat tai ajatukset. Vastaamalla kysymyksiin autatte tutkimuksen toteutuksessa ja kenties saatte oivalluksia myös omaa elämäänne ajatellen.

Jokaiselle päivälle löytyy omat sivut ja tehtävät, joita voitte täyttää koko perheen kesken tai halutessasi myös yksin. Voit aina myös palata edellisten päivien tehtäviin, mikäli mieleesi tulee jotain uutta tai haluat lisätä jotain. Kirjoittamisen lisäksi voit myös piirtää jos siltä tuntuu.

Päiväkirjan lopussa on tyhjiä sivuja siltä varalta, että päiväkohtainen tila loppuu kesken. Sinne voi kirjata (tai piirtää) tutkimuksen aikana mieleen tulevia ajatuksia ja ideoita.

2. Ohje: Ota muutama kuva

Toivon, että otat viikon aikana muutamia kuvia perheenne hyvinvointiin liittyvistä merkityksellisistä asioista. Kuva voi olla jostakin paikasta, tilanteesta, esineestä, nettisivusta, sovelluksesta, tai mistä tahansa mielestäsi tärkeästä.

Kuvien ottamisen suhteen ei kannata kuitenkaan olla liian kriittinen. Nappaa kuva, vaikka et olisikaan ihan varma. Kuvat kertovat usein enemmän kuin tuhat sanaa.

Kuvien ottamiseen voit hyvin käyttää omaa matkapuhelintasi. Voit lähettää kuvat minulle haluamallasi tavalla (sähköposti, WhatsApp, jne) joko pitkin viikkoa tai kaikki kerralla tutkimuksen lopussa. Jos mahdollista, laita kuvan mukana lyhyt, muutaman sanan kuvaus.

3. Ohje: Magneetti ja tussit

Laita materiaalien mukana tullut magneetti esimerkiksi jääkaapin oveen. Sen tarkoitus on muistuttaa päivittäisten tehtävien tekemisestä. :)

Tussien tarkoitus on innostaa luovuuteen. Asioiden ja ideoiden visualisointi on hauskaa ja usein jopa helpompaa kuin kirjoittaminen. Kokeile siis rohkeasti, jos siltä tuntuu.

1. Päivä

”Meidän perhe”

Kuvatkaa perheenne haluamallanne tavalla (esimerkiksi kirjoittamalla, piirtämällä tai ajatuskartalla). Sisällytä ainakin seuraavat asiat: perheenjäsenet, työ, harrastukset ja kiinnostuksen kohteet. Seuraavalla sivulla ja päiväkirjan lopussa on lisää tilaa.

1. Päivä

Miltä sinusta/teistä tuntuu tänään?

Voit myös piirtää itse jos haluat.

2. Päivä

**Minkälainen päivä perheellänne on tänään ollut?
Mitä teitte?**

Mikä oli tänään haastavinta? Koitteko esimerkiksi kasvatuksellisia, terveydellisiä tai muita lapsiperheen arkeen liittyviä haasteita?

**Miten ratkaisitte haasteen? Mistä löysitte tietoa ja kuka sitä etsi?
Minkälaista tukea olisitte tarvinneet asian ratkaisemiseen?**

2. Päivä

Mikä tekee päivästänne onnistuneen? Miksi?

Miltä sinusta/teistä tuntuu tänään?

Voit myös piirtää itse jos haluat.

3. Päivä

**Minkälainen päivä perheellänne on tänään ollut?
Mitä teitte?**

Mikä oli tänään haastavinta? Koitteko esimerkiksi kasvatuksellisia, terveydellisiä tai muita lapsiperheen arkeen liittyviä haasteita?

**Miten ratkaisitte haasteen? Mistä löysitte tietoa ja kuka sitä etsi?
Minkälaista tukea olisitte tarvinneet asian ratkaisemiseen?**

3. Päivä

Mikä on tärkeintä perheenne hyvinvoinnin kannalta? Miksi?

Miltä sinusta/teistä tuntuu tänään?

Voit myös piirtää itse jos haluat.

4. Päivä

Etsi tietoa kesällä järjestettävistä, teitä kiinnostavista lapsiperheiden tapahtumista pääkaupunkiseudulla. Kerro miten ja mistä hait tietoa.

4. Päivä

Mikä huolestuttaa sinua/teitä vanhempina eniten perheenne hyvinvointiin liittyen? Miksi?

Miltä sinusta/teistä tuntuu tänään?

Voit myös piirtää itse jos haluat.

5. Päivä

**Minkälainen päivä perheellänne on tänään ollut?
Mitä teitte?**

Mikä oli tänään haastavinta? Koitteko esimerkiksi kasvatuksellisia, terveydellisiä tai muita lapsiperheen arkeen liittyviä haasteita?

**Miten ratkaisitte haasteen? Mistä löysitte tietoa ja kuka sitä etsi?
Minkälaista tukea olisitte tarvinneet asian ratkaisemiseen?**

5. Päivä

Mistä haaveilette? Miksi juuri nämä haaveet ovat teille tärkeitä?

Miltä sinusta/teistä tuntuu tänään?

Voit myös piirtää itse jos haluat.

6. Päivä

**Minkälainen päivä perheellänne on tänään ollut?
Mitä teitte?**

Mikä oli tänään haastavinta? Koitteko esimerkiksi kasvatuksellisia, terveydellisiä tai muita lapsiperheen arkeen liittyviä haasteita?

**Miten ratkaisitte haasteen? Mistä löysitte tietoa ja kuka sitä etsi?
Minkälaista tukea olisitte tarvinneet asian ratkaisemiseen?**

6. Päivä

Jos sinulla olisi käytössäsi digitaalinen assistentti, minkälaisissa asioissa haluaisit apua? Miksi?

Miltä sinusta/teistä tuntuu tänään?

Voit myös piirtää itse jos haluat.

7. Päivä

**Minkälainen päivä perheellänne on tänään ollut?
Mitä teitte?**

Mikä oli tänään haastavinta? Koitteko esimerkiksi kasvatuksellisia, terveydellisiä tai muita lapsiperheen arkeen liittyviä haasteita?

**Miten ratkaisitte haasteen? Mistä löysitte tietoa ja kuka sitä etsi?
Minkälaista tukea olisitte tarvinneet asian ratkaisemiseen?**

7. Päivä

**Mitä digitaalisia palveluja käytätte? Mikä näissä palveluissa on erityisen hyvää?
Mitä kehittäisitte näissä palveluissa?**

Miltä sinusta/teistä tuntuu tänään?

Voit myös piirtää itse jos haluat.

Appendix 4: Example of an interview guide used in the contextual interviews

1. **Opinnäytetyön ja tutkimuksen tavoitteet**

2. **Palaute päiväkirjan tehtävistä ja tutkimukseen osallistumisesta**
   - Miltä muotoiluluotaimen päiväkirjan täyttäminen tuntui?
3. **Hyvinvointi:**
   - Kerro lisää perheenne harrastuksista ja kiinnostuksen kohteista? Miksi olette kiinnostuneita juuri ko. asioista, mitä ne antavat?
4. **Haasteet ja huolet**
   - Kerro tarkemmin perheen hyvinvointiin liittyvistä haasteista ja huolista. Miltä nämä asiat saavat sinut tuntemaan?
   - Miten pyritte ratkomaan haasteita?
   - Minkälaista tukea olisit tarvinnut?

5. **Haaveet ja päivittäiset ilon aiheet**
   - Mikä tekee päivästänne onnistuneen? Miksi? Kerro tarkemmin.
   - Kerro lisää haaveistanne? Miksi juuri nämä haaveet ovat tärkeitä?
   - Minkälainen on unelma-arki?

6. **Tiedonhaku ja tiedon muoto sekä luotettavuus**
   - Minkälaisista asioista, miten ja mistä haet tietoa perheenne hyvinvointiin liittyen?
   - Minkälaisia haasteita koet tiedon etsinnässä/löytämisessä?
   - Mitä tekee internetistä saamastasi tiedosta mielestäsi luotettavan?
   - Missä muodossa haluat mieluiten tietoa? Miksi?
7. **Käytössä olevat digitaaliset sovellukset**
   - Miksi käytätte mainitsemianne digitaalisia sovelluksia? Millä laitteilla haluat käyttää sovelluksia? Miksi?
   - Mikä tekee käyttämistänne digitaalisista sovelluksista erityisen hyvän / helppokäyttöisen? Entä mikä niissä ärsyttää / mitä asioita kehittäisit?
   - Jos sinulla olisi käytössäsi digitaalinen assistentti, minkälaisissa asioissa tarvitsisit apua? Miksi? Kerro tarkemmin mainitsemistasi asioista.
   - Kuvaile ideaalisovellusta? Minkälaista tietoa saisit ja miten?
   - Mitä sovelluksen proaktiivisuus perheenne hyvinvointiin liittyen tarkoittaa sinulle? Miksi mainitsemasi asiat ovat tärkeitä?
8. **Rekisteröityminen ja tunnistautuminen digitaalisissa palveluissa**
   - Haluaisitko rekisteröityä esim. FB / Google / Yle / sähköposti tunnuksilla? Miksi/Miksi et?
   - Onko eri menetelmillä eroa? Mitä hyötyä / haittaa näet eri menetelmissä?
   - Miten haluaisit hallinnoida sinusta/perheestäsi kerättyä tietoa?
   - Minkälaisissa tilanteissa haluaisit asioida anonyymisti? Miksi?
9. **Muuta: tuleeko sinulle mieleen jotain mitä haluaisit vielä lisätä?**